JUNE 1997
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internet magazine

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nd venture capital...

How you can make a Net million!

The insider's guide:
Packed with expert advice, investment tips and UK success stories
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Images for your site: quick, easy and copyright free

How to make Push work for you

Exclusive! The first 56.6 modem on test

We ask BT, will local calls ever be free?

Keep your personal details safe across the Net

Your access provider on test

SPECIAL REPORT
Getting the best deal on leased lines and ISDN

From Emap Computing

Internet Access without the Excess

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				1 hour	6 hours	12 hours	24 hours
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Compuserve‡	x	✔	✔	£78.00	£101.40	£241.80	£522.60
Demon	x	x	✔	£132.50	£132.50	£132.50	£132.50
Easynet	x	✔	x	£143.80	£143.80	£143.80	£143.80
Pipex Dial	x	x	x	£175.00	£175.00	£175.00	£175.00
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†Includes any applicable setup charge but not introductory offers.

‡Compuserve prices are set in US Dollars and converted at prevailing exchange rate.

Information correct at time of going to press.

All prices exclude VAT (where applicable).

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Global Internet Annual Account
£89.99 ex. VAT **£105.74** inc. VAT

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3 56k Ready -

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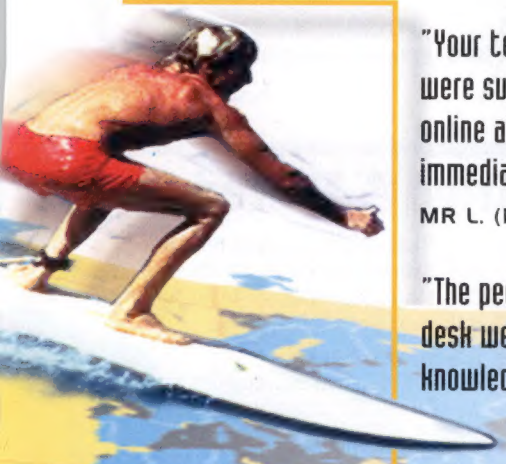
7 days a week technical support from our expert team.



"Your tech support team were superb, they got me online almost immediately"

MR L. (HUNTINGDON)

"The people on your help desk were very knowledgeable, helpful and polite"

MR G. (LONDON)

5 100% Local Call Access

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See page 7

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Making a Net Million
Who's made a million on the Net? And who's going to be raking it in this year? We offer tips for the budding Netrepreneur.
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- Complete listing of the cybercafés in the UK
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June 1997, Issue 31

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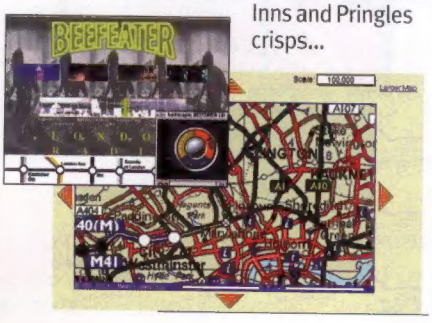

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140 Which access provider
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It's a brave new world! But will it make any difference to the Internet?

New Labour, New Net? Hardly. Own up – how many of you went online just after 10:00pm on May 1st? Despite the proliferation of election Web sites, from MSN's Decision 97 to the worthy GE97 site, this was no cyber-election. The 'under construction' notices on the GE97 site gave the game away – if it's not built on election night, it'll never get built.

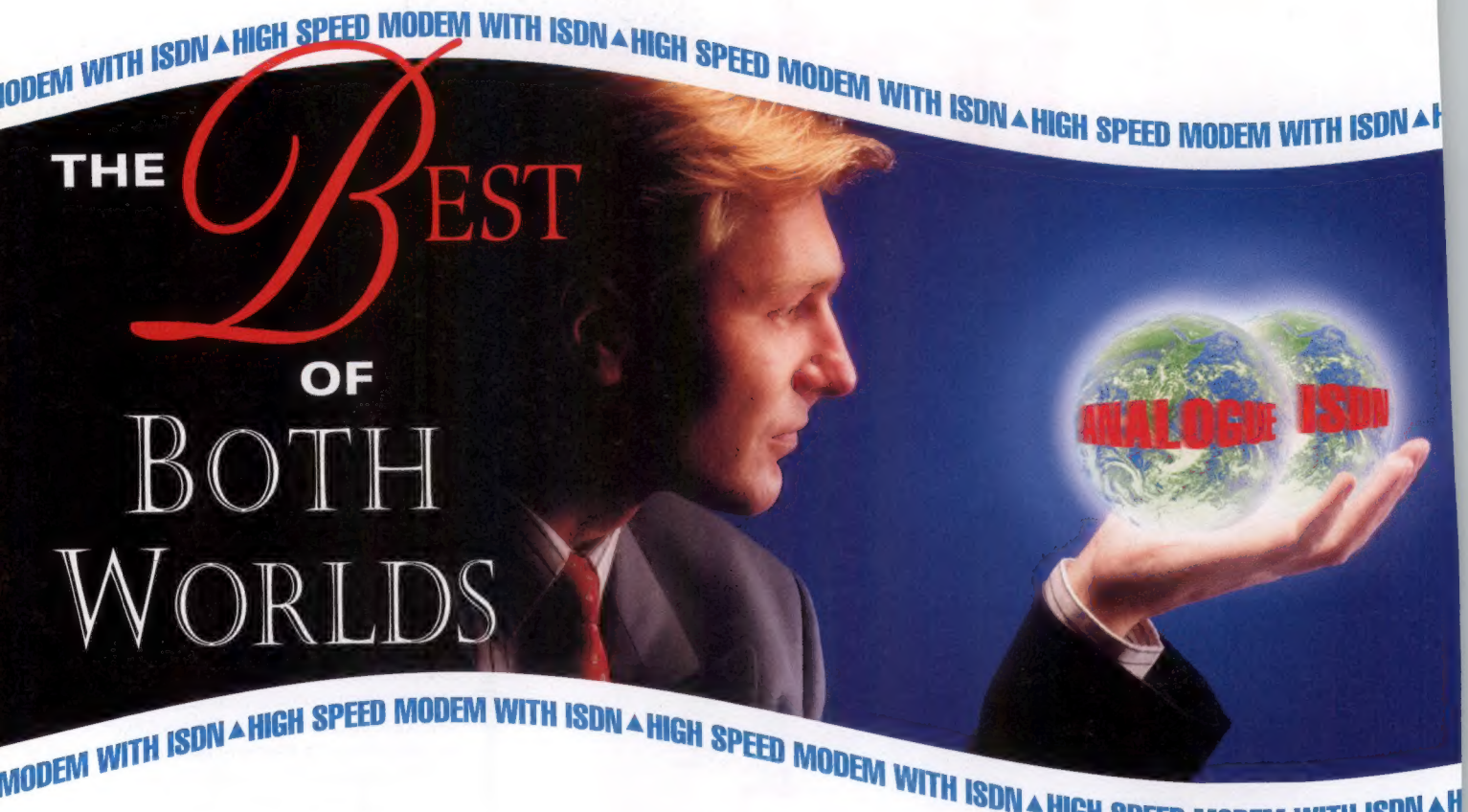
Sitting in the office slogging away on election night we were prime candidates to use these sites, but the fact that Radio 4's coverage won the day is revealing.

It's not just designers of political sites who need to face up to new challenges after the election, but the government itself. Have you noticed how fast the Web now is under the Blair government? Not only did we win the Eurovision song contest, but downloads are twice as fast. OK, I'm just kidding but we have been looking at the effect the new Labour government will have on the development of the Internet (*see page 17 for details*).

This month I've been mostly installing push clients – and what fun that has been. In theory, push is a fabulous thing. There's nothing I'd like better than pre-filtered news delivered to my desktop. The problem is my test machine is a mere 90MHz Pentium with 16Mb of memory, and after installing six push clients it was not a happy piece of silicon.

To make matters worse they all load up as you start up Windows and then you're stuck with six little agents running in the corner of your screen watching out for Net content. I had the latest news, stock market information and, what with all those astrology channels I've subscribed to, I have become *Internet Magazine's* answer to Mystic Meg. Nevertheless, the only push software I'll keep on my tardy PC will be PointCast – for sensible business information it's still the best option. For the full story turn to page 62.

Gail Robinson
Editor



U.S. Robotics is one of the world's leading manufacturers of products and systems that provide access to information, as well as the UK's undisputed leader in high speed modems. The Courier range of modems is renowned for advanced performance and reliability. The latest addition to this range, Courier I-modem, combines both analogue and ISDN connectivity (The Courier I-modem requires an ISDN2 basic rate connection to operate).

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www.btinternet.com

BT Internet Service does not include ISDN or PSTN line provision. Call charges are additional. For Plan 180, the minimum subscription period is one month. For Plan Unlimited, it is one month for customers paying monthly and 12 months for those paying annually. Customers can only switch to a different pay plan at the end of the minimum subscription period. Unused time on Plan 180 cannot be carried forward to the next month. Plan Unlimited previous price £15 a month until 23rd January 1997. Business billing available on Plan Unlimited. BT reserves the right to change its prices at any time. BT intends to review Plan 180 prices in July 1997.

For news updated every working day visit the Internet Magazine Web site at:
www.emap.internet/news/news.shtml

If you've got a potential news story email the details to
news@internet.emap.com

news

PORNOGRAPHY

CompuServe faces German porn law

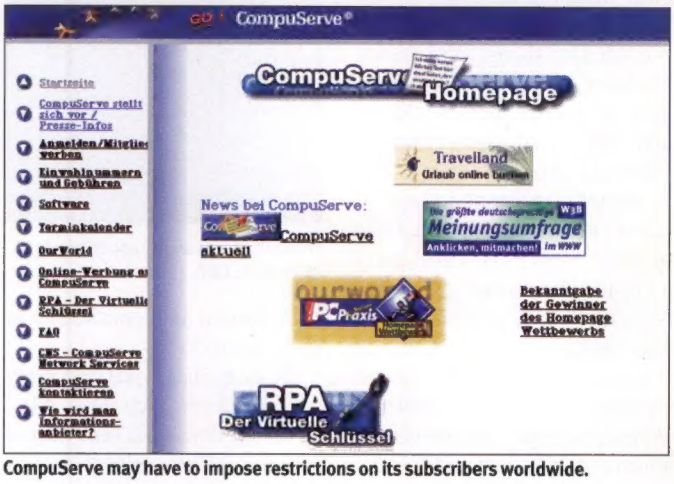
Felix Somm, general manager of the German branch of online provider CompuServe, is to face criminal prosecution for the transmission of racist and pornographic material.

CompuServe is being charged with trafficking in pornography and neo-Nazi propaganda by prosecutors in Bavaria following raids on its Munich offices last year. However, the charges are levelled directly at Mr Somm as German law doesn't allow companies to be prosecuted under criminal law.

The case is the first in Europe to have criminalised an online provider for the material it transmits. In the US, CompuServe's parent company, H+R Block, vowed to "vigorously oppose" the "entirely groundless" charges. It asserts the company cannot be held liable for the content of Web sites accessed via CompuServe, nor for the censorship of online content.

CompuServe Incorporated has repeatedly stated it can't control Internet newsgroup content, which is made up of thousands of discussion threads and has thousands of participants worldwide, only some of whom will be CompuServe Incorporated members.

If the charges are upheld then CompuServe could be forced to impose restrictions that follow the German legal system on its 3.3 million subscribers worldwide.



CompuServe may have to impose restrictions on its subscribers worldwide.

Reacting to the news, David Kerr, chief executive of the Internet Watch Foundation, said: "The view in the industry is that we will not see this occur again, it's an isolated case. Bavaria is renowned as a radical Christian Democrat stronghold and the German government is going to introduce legislation specific to this issue. In the long term," he added, "it will only serve to underline the need for co-operation between industry and governments across European states."

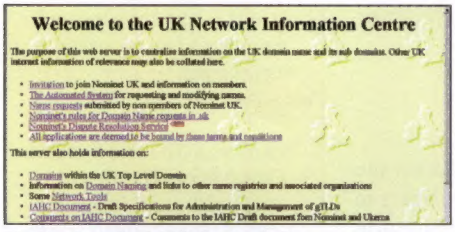
www.compuserve.de

NAMING

Net Naming agreement near

Nominet, the UK domain naming authority, has issued proposals that will enable companies to solve disputes over domain names without taking expensive legal action.

The Nominet Alternative Dispute Resolution Service will provide a mixture of conciliation services and expert mediators to resolve domain disputes over first- and second-level domains in the UK.



The Nominet site details the resolution procedure.

Nominet can, however, suspend a domain name if needs be. As an example, Nominet claims it would suspend a domain name when it's being administered in a way that it feels is detrimental to the DNS domain naming structure that underpins the Internet.

As part of its resolution service, Nominet will maintain a rota of expert third-party advisors who will be given full access to all documents relating to the registration and administration of a particular domain name.

Nominet's resolution process is guaranteed to provide a decision within one month. All parties to the dispute can appeal against any decisions made. And the entire procedure can be referred to an arm of the CBI for mediation if the outcome isn't upheld by both parties involved in the dispute.

www.nominet.org.uk

ACCESS

Mitsubishi access UK's cheapest

The cheapest Net access in the UK, so far, is on offer from Mitsubishi's online specialist content provider, Infotrade. Under the new pricing structure, it will offer unlimited access at £70 per year with six month's free access for new customers.

The company cites industry failure to support the Net in the UK as the reason behind the move. Infotrade believes the UK is behind the US and Europe.

"The broader changes required to really develop the market in the UK need a concerted effort from all three parties – the IAPs to deliver more value and greater security for commercial transactions, the government to create a framework for a consumer friendly Internet market and the telephone companies to introduce tariffs which takes account of the needs of the Internet user," says Peter O'Connell, general manager of Infotrade.

Infotrade users can choose between two subscription rates: unlimited access for a yearly fee of £10 plus £4.99 per month, or you could go for a free six-month standard subscription with two hours online per month (thereafter the service will cost £1.55 per hour). All Infotrade calls are charged at a local rate using an 0345 number. For more information go to:

www.infotrade.co.uk

Peter O'Connell: The UK is falling behind not only the US, but Europe.

PUSH

Netscape casts for push

After watching its share of the browser market being consistently eroded by Microsoft's Internet Explorer, Netscape has renamed its set of push technology add-ons and integrated them into its Communicator software.

Initially christened Constellation, Netscape's new collection of push clients and third-party add-ons has been renamed Netcaster in direct opposition to Microsoft's Channel Definition Format (CDF) technology. Due to be incorporated into the final version of Netscape Communicator, which should be released late this month, Netcaster can take existing

NetCaster faces strong opposition from Microsoft's CDF.

Web content and repackage it as push channels.

Netscape has roped in an array of publishers including ABC News, HotWired and TimeWarner as part of its initiative. The Castanet tuner from Java start-up Marimba will also be included in the package. Netcaster will also include offline browsing features and a customisable interface for participating publishers.

Nevertheless, the major concern about this collection of push media is the fact that it won't work with Microsoft's CDF. As Netcaster is based on open standards such as Java and JavaScript, Netscape claims that it should take precedence over CDF. But until a common standard unites the two, it appears that publishers will have to develop content for both standards.

www.netscape.com

INDUSTRY

UK Internet industry to plug skills gap in business

A consortium of UK Internet companies has formed the Silicon Network, with the aim of plugging the Internet skills gap in UK business.

The group will provide a full range of Internet skills, from access provision to database re-engineering, for UK businesses of all sizes. Customers will have a single point of contact, currently based at the Silicon Graphics (SGI) headquarters. Initially an SGI initiative, the Silicon Network hopes to include companies like Oracle, although Silicon Network Marketing Manager Craig Churchill describes Microsoft's chances of being admitted into the group as "pretty slim".

Backed by Netscape, Informix and Silicon Graphics, the Network will include 10 other small Internet specialists in various fields. These include INS, Planet Online, PSINet, Teamworks Interactive and Telewest. As the group grows, it hopes to include a wider variety of companies, but for the moment it's identified what it calls 'best of breed' companies in various sectors.

The group hopes to launch 10 pilot projects over the next few months, in which SGI's existing clients, such as AT&T and Unilever, may participate. The group will also launch an accreditation scheme for interested companies.

The Silicon Network (01734) 257 565

DIGITAL CONVERGENCE

A new breed of Net agencies

The simultaneous UK launch of US new media outfit Poppe Tyson and UK start-up the Uptime Group heralds a new breed of multinational Net agencies.

Poppe Tyson Interactive, the New York design, marketing and Web site management firm, is a spin off from the BJK&E group, responsible for business to business marketing in the US. Its interactive division now has a turnover of $20 million a year, and with 30 staff in the UK increasing its overall head count to 300, it can offer global services and marketing for its primarily US-based clients which include Sony, IBM and Unilever.

The presence of US Net media companies puts a question mark over the viability of indigenous companies in the same market. UK start-up the Uptime Group offers Net services in three areas - commerce, advertising and media publishing. A Netscape partner, it has already launched the motor racing Formula One Fantasy site at **www.f1.gp.com**. It also offers an advertising sales and design arm and a commerce division that offers certification, authentication and digital signature services, all key parts of the emerging electronic commerce market. The company will shortly begin its WebMiles and WebWallet loyalty schemes for users of commerce sites in the UK.

www.poppe.com/europe
www.uptimegroup.com

Just in...

In a bid to bolster market fears that top executives became demotivated once they'd cashed in on the company's successful flotation, Netscape CEO Jim Barksdale has opted to take purely-profit related pay next year. Analysts estimate that this may cost him $100,000. However, for those concerned about his well-being, it should be pointed out that Barksdale's stock options are valued at $209 million.

HIP 97, the hacker's convention, is to take place this year in Aakweg, just outside Amsterdam, between 8-10 August. At the same time another hacker's convention – Beyond Belief – will be held in New York.
www.hip97.nl
alt.hacking.in.progress

Pace Micro Technology has signed an agreement with US-based WebTV Networks. Pace will incorporate WebTV Networks' technology into its products by Christmas this year.
www.pace.com

Lanacom is to push its European content using the Microsoft-backed Channel Definition Format (CDF). With content providers including the Electronic Telegraph and the BBC, Lanacom is one of the leading players to push Web-based content specifically for UK and European markets. Its adoption of CDF, along with PointCast and Backweb, strengthens the CDF standard in the face of competition from the Netscape-backed NetCaster standard that has gained the backing of push vendors such as Marimba and Intermind.
See page 62 for our push client Labs test.
www.lanacom.com

Net users will be able to follow Sir Chris Bonington's attempt to climb one of the last unexplored mountains, Sepu Kangri, in north east Tibet. The veteran mountaineer's climb to the 22,802-foot summit will be recorded using the AgfaPhoto 307 digital camera, and then downloaded to Bonington's own Web page.
www.bonington.com

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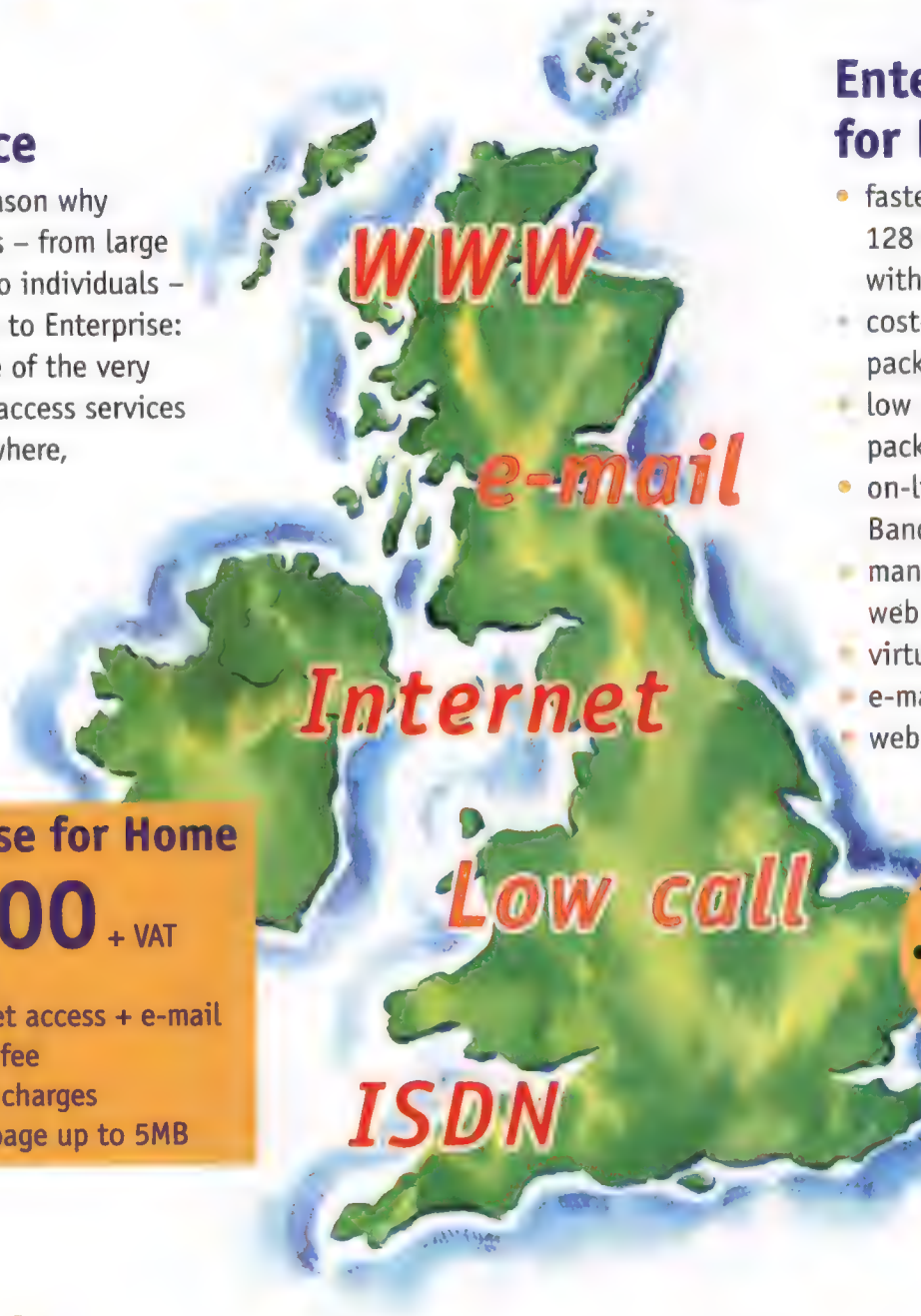

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UPDATE

The World Book Multimedia Encyclopedia CD-ROM International English Edition from IBM does a lot of work for your kids. It's a bit of a swot really – because it uses the Internet to update the thousands and thousands of articles it contains with any juicy nuggets of information.

This means that World Book is one encyclopedia that can always stay up to date. After all, things do change. There was a time when everyone was convinced that the world was flat and that if you sailed too close to the edge you'd fall off.

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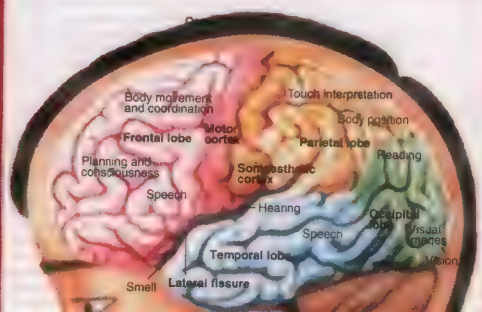

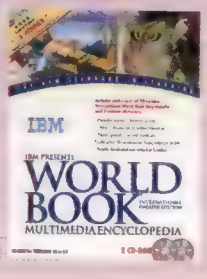

POLITICS

Net mogul in sleaze battle

Paul Sykes, chairman of access provider Planet Online, is seeking legal advice after an article in *The Guardian* linked him to a new Tory sleaze scandal.

The millionaire – the property developer behind the Sheffield Meadowhall centre and founder of the Yorkshire-based Internet service – is a long-standing member of the Conservative Party. He backed out of his candidacy for Barnsley Central at the last round of local elections because of his vehement anti-Federalist Europe beliefs.

Sykes appeared on the front page of the 30th April edition of *The Guardian* under the headline: "This man gave money to 237 Tories". The paper alleges that Sykes gave £500,000 in funds to 237 Tory candidates who are known opponents to a single European currency.

Sykes: set to go legal with *The Guardian*.

"I think we will get more connections from businesses as anyone with a modicum of sense will not take this story seriously. Planet is funded from my support and anyone who gets nervous about this story can take their business elsewhere, banks included.

"We don't run a wire out of a garage here, you know. We will remain at the forefront of Internet service. I'm not about to run out of money," says Sykes.

As Internet Magazine went to press Sykes had issued a writ against *The Guardian* newspaper on the grounds of insinuating that he had given cash direct to candidates.

www.theplanet.net

CENSORSHIP

Provocative images off Prolife site

In the first UK case of Internet censorship enforced according to broadcasting regulations, the Prolife Alliance has been forced to remove images of late-term abortions from its Web site.

Service provider Enterprise, on whose server the site was hosted, was inundated with complaints from Net users, until it relented and removed the offending pages. The image files were later restored to the site, but in a format that couldn't be accessed without a considerable amount of PC knowledge.

"There is a huge reluctance in the UK for people to face up to the reality of killing an unborn child," says Jo Quintavalle, spokesperson for the Prolife Alliance. "It is very insulting to us to have our message likened to pornography. This has opened up the whole question of whether a server is a broadcaster or a common carrier."

The Prolife Alliance's TV election campaign broadcast was banned by the BBC on the grounds of taste and decency, a fact it claims "reeks of hypocrisy and shows the lack of true freedom of expression in this PC world of ours".

"Liberty has always supported a woman's right to choose, and is completely opposed to the views of the Prolife Alliance," says John Wadham, director of pressure group Liberty. "However, we are concerned about the legalities of restriction on political expression."

www.enterprise.net/prolifealliance/

email: prolife@enterprise.net

LEGISLATION

EU gives thumbs down on cybertax

The European Commission has announced a set of proposals to give online commerce a boost.

Mario Monti, the EU single market commissioner, has suggested that trading on the Net should come under the protection of the EU and that the union should rely less on imposing new laws and more on mutual recognition of national set-ups. He did, however, acknowledge that some new regulations may be required to integrate different countries' rules on encryption, digital signatures and intellectual property.

"We need a favourable regulatory framework to encourage business to invest in products, services and infrastructure. Without a framework, businesses feel they cannot risk the huge investments needed," said Monti.

Till: Hears the ring of Euro commerce.

Monti declared that existing tax regulations in member countries already cover cybercommerce, obviating the need for a new tax.

Response to the proposals has been positive. "We welcome any move that brings a strong European focus and which will encourage growth. Europe has so far lagged behind the States and Japan in this area," says Dr. Roger Till, chief executive of the Electronic Commerce Association. "I only hope that it will translate into new opportunities and not get bogged down in bureaucracy."

www.ispo.cec.be/ecommerce

www.eca.org.uk

ops@eca.org.uk

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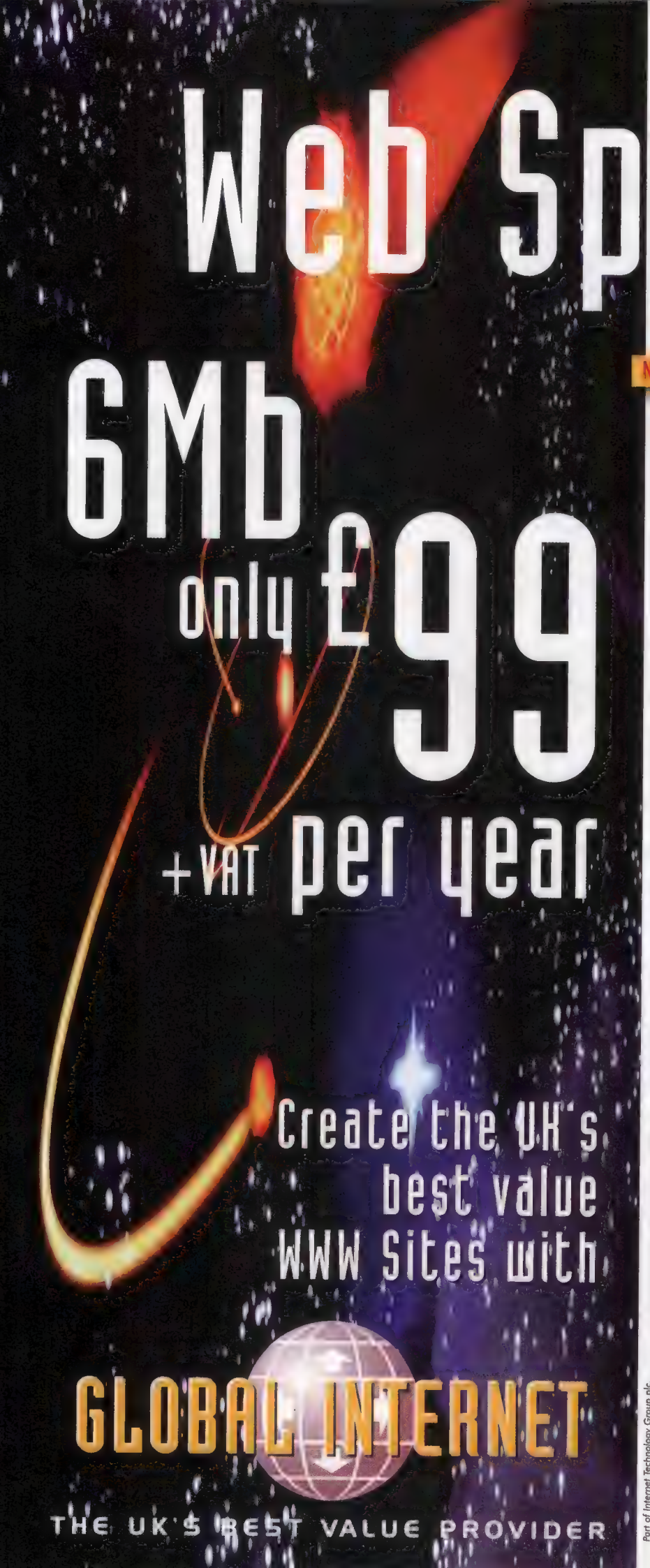

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NET DEMOGRAPHICS

Polls split on Net take-up

Two reports examining the mass-market appeal of the Internet have produced conflicting results.

Research group BMRB claims that the Internet is moving increasingly towards the mass market, with the number of consumers getting online increasing by 75 per cent year-on-year to a current total of 3.4 million in the UK. In particular, the report identifies a trend for more women and lower-class users, and predicts that 40 per cent of the UK will be connected by 2000.

Media Futures – a separate report from the Henley Centre – suggests that current users are early adopters whose tolerance levels will not be matched by the mass consumer market.

"The magnitude of the publicity about the Internet is, in all likelihood, setting up the Internet for a fall," says Sîan Davies, programme director of Media Futures. "To a significant extent, the Internet is a technology before its time. While the early adopter may put up with its idiosyncrasies, the Internet will need to re-invent itself before making the transition to the mass consumer market."

The Henley report also identifies a number of cultural differences in Internet adoption patterns between the UK and the US. It found that UK users primarily use and access the Net at work, while in the US home connections dominate.

www.brmb.com
www.henleycentre.com

		Net users	UK Adult Pop'n
Gender	Male	71%	49%
	Female	29%	51%
Age	16-24	34%	16%
	25-34	28%	21%
	35-44	22%	20%
	45-59	13%	24%
	60+	3%	19%
Class	AB	47%	21%
	C1	35%	27%
	C2	12%	22%
	DE	6%	39%
Employed		67%	53%

Source: The Henley Centre Media Futures '97

FUTURES

Artificial ears by 2000

Researchers at BT laboratories have published their 1997 technology calendar, outlining their predictions for the first commercial application of nearly 3,000 emerging technologies.

The project was overseen by BT Applied Research and Technologies futurologist Ian Pearson. "As the millennium approaches there seems to be a particular upsurge in interest in the future, which can be seen in the amount of enquiries about future technology we have been getting," says Pearson.

Amongst the major predictions for the next 30 years of technology are videophones, artificial body parts and email to household appliances.

www.labs.bt.com/people/pearsoid/index.htm

Highlights of the BT predictions

2000	Artificial ears
2002	Electronic implants for the disabled
2005	Computers which write their own software
2007	Smart clothes with thermal properties
2010	Robotic pets
2017	Human knowledge exceeded by machines
2020	Regular manned missions to Mars
2035	Artificial brain

NET COMMUNICATIONS

No lottery money for the Net

Mike Farrow, MD of Internet application developer Channel Business Systems, has hit out at the Millennium Commission. Farrow claims it's a dinosaur because of its refusal to fund Net-based projects.

When Farrow approached the commission for funding for a non-commercial educational Internet-based project, he alleges that Michael O'Conner, its director of policy and corporate affairs, said he considered the Net was not important for this country, only for the US.

Farrow claims the Millennium Commission has so far snubbed Internet projects although it's the sole lottery distribution body able to fund large-scale IT projects. What's more, according to its official remit, the body is charged with funding projects that "will be seen by future generations as marking a significant moment in their national history."

"I think it all comes down to ignorance," says Farrow. "The Millennium Commission is the only one of five lottery distribution bodies that can fund large-scale technology projects. They have no Internet presence, do not use the Net and I think they don't appreciate what the Internet can do for them."

O'Connor maintains he has been misquoted. "I think the Net is of international importance, not just for Britain," he says. "We have supported IT projects, we use the Internet in the office and we are, in fact, developing a Web site."

"However," he adds, "competition for grants is incredibly tough and our main concern is with capital projects that will remain assets into the next century and projects we feel would not be funded elsewhere."

www.hubcom.com/channel/

Just in...

Scottish-based Internet access provider (IAP) Colloquium has announced a £6 per month pricing system. The deal is kind of strange – you're charged for the amount of information you download rather than the time you spend online.
www.colloquium.co.uk

The revamped Radio 1 Web site hits the airwaves. New features include a downloadable navigation tool and sections devoted to key shows.
www.bbc.co.uk/radio1

A free service called CAROL – Company Annual Report Online – has been launched to provide details about the top 500 UK companies.
www.carol.co.uk

The latest report from Datamonitor predicts that the revenue from online gaming will reach $1 billion by 2002. Datamonitor reckons other cash-generating ideas will include merchandising, advertising revenue and pay-per-play charges.
www.datamonitor.com

Microsoft is claiming huge increases in the use of its Internet Explorer (IE) browser. Microsoft claims that, on some UK sites IE usage is nearly 70 per cent. It should be pointed out though that many of these sites are ones using Microsoft's browser as the default software.
www.microsoft.com/ie/

The following amendments should be noted for the How much a domain name will cost you table, page 48, *Internet Magazine*, May 97:
Corpex's price for one year is £60. Digital Portfolios price for one year is £49 and the name is activated within two days. DomNames prices for one year start at £65 and names are activated in one hour. Internet Network Services' price for an extra year is £40. Net Village's price for one year is £40. While, Virtual Computer activates domain names within ten minutes.

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www.emap.com/internet/

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POLITICS

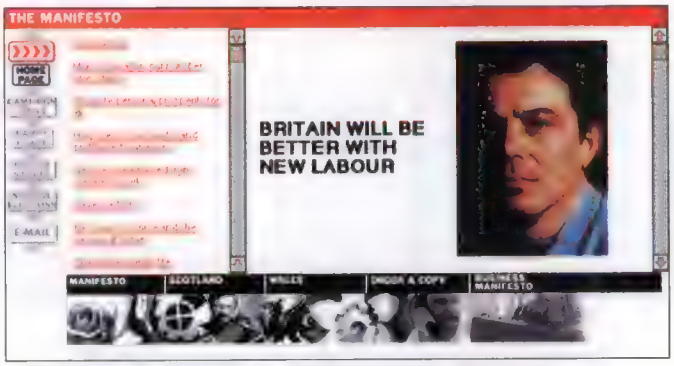
Will Tony succeed where John failed?

In the wake of Labour's stunning victory, David Atkinson examines what a Labour government will mean for the online world, and talks to those in the industry who will be watching what happens next.

So it's finally all over. 1 May was, according to *The Independent*, 'Freedom day'. But after the champagne has run dry at Labour campaign HQ, Peter Mandelson has tried out the chairs in the House of Lords for size and the party revellers have spilled out of the Ant & Dec election knees-up onto the new Labour streets of Islington, what will it all mean for the online world?

Billed as the world's first online election, the Labour victory was nevertheless won on the streets of Britain, not in cyberspace. The voice of the online community generally failed to be heard amid the personality politics and Tory sleaze exposés. So will Tony Blair really make a difference to the Net's future? Will he give it the credence the industry is calling for?

"We have a tremendous opportunity, under a Labour government, to take a different view of IT. I think the Labour party will take the IT issue more seriously than the Conservatives," says Philip Crawford, MD of Oracle UK and Ireland, and Net advisor-in-waiting to the new government.



Will the Internet really be in safe hands under a Labour government?

"I believe their first step will be to set up a think tank of industry leaders and map out the way forward for IT."

Says Rob Wirszycz, "If Labour is truly a modern party then it's a tremendous opportunity to create an information society, and we will be pressing them hard for meetings with the new ministerial appointments." Rob is director-general of the CSSA, the UK trade association for the software, IT services and information industries, which along with Crawford recently set out a manifesto to put IT on the political agenda.

"We had some very encouraging meetings with Labour prior to the election and the key point for us now is the size of their majority," Wirszycz adds. "With a mandate so strong they can afford to make decisive policy decisions."

According to Geoff Hoon, MP for Ashfield in Nottinghamshire and Labour technology spokesperson, the first tangible signs of Labour's commitment to the Internet will be in education.

"The number one priority has to be education, as Tony Blair has already made clear," says Hoon. "The leader is very committed to IT, and my role has been working beyond my immediate team to foster awareness. If the Net is to be seriously regarded then it has to be a cross department initiative."

"Labour sets itself apart from the other parties in the fact it recognises government has a role to fulfil in setting out direction and vision," he adds. "Most of the computer companies I deal with say they're looking to the government to lead the way. In the longer term, I believe government itself can be transformed by the use of IT connecting government to the public in terms of exchange of information."

The industry is now looking to Labour to represent its interests. The first flush of euphoria suggests the mood is positive. "We can only wait now and see if Labour delivers on its promises," says Crawford. "If it does it will be good for the country and for the industry as a whole."

www.labour.org.uk/
www.cssa.co.uk/cssa/index.htm
www.oracle.com

What industry pundits have to say...

David Kennedy, chief executive, ISPA
"We don't believe the result will make a major difference to the way the industry is developing. Both parties seemed to be in agreement in terms of the value of the industry and the principles of self-regulation."

Jonathan Bulkeley, managing director, AOL UK
"This was the first UK general election where the online world was a significant part of the campaign. With a new government now in place, we can expect this to continue – government's use of the Internet will increase as more and more of the electorate goes online."

Laurence Blackall, managing director, Global Internet
"Labour's win means that IT now becomes an education issue rather than something that the Tories have largely ignored for the last 18 years. Tony Blair's vision for the future of technology in schools means that the next generation will be IT literate.

"In particular, his policy to get all schools online can only be viewed as positive for the Internet industry as a whole. The Internet is a global medium and children in the UK will be right up there at the forefront of the technology revolution."

Nico Koepke, vice-president, Technology and Media, Sony Music Entertainment Europe
"It is vital that the concept of the Internet and the World Wide Web is understood and used from an early age and, therefore, in school education. Any party using their governmental power to move this issue forward is welcomed by me."

Sam King, creative director, Palace of Vision (Internet design consultancy)
"I'm not sure that any political party has really got to grips with just how seismic the development of the Internet will be. Labour at least have shown that they are aware of the enormity of the situation. We need a government with vision, which understands that three years ago the Net as we know it simply didn't exist and that the next five years are going to be critical to this country's long-term well-being."

Richard Barbrook, course director, Hypermedia Research Centre, University of Westminster
"It's a great result. Let's hope the new government adopts a telecoms and Net policy to ensure we get a broadband network into every home and business. We need the infrastructure to be wired for the 21st century."

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IM 6/97

Musician to Megageek to Millionaire

Jaye Muller, President of JFAX

Jaye Muller – 25 years old, flowing of locks, casual of attire and possessing a record collection the size of the GDP of a small South American country. David Atkinson talks to the founder and president of what's being tipped as the most innovative Internet company since Netscape.

And do you want to know what's worse? In the understated-verging-on-spartan offices of JFAX's New York HQ, I can't even indulge myself in the luxury of hating him. For face to face, the little-boy-lost figure in the Martin Luther King 'I have a dream' t-shirt, sitting under the company mission statement like a petulant work-experience student, turns out to be a sickeningly nice guy.

"Jaye doesn't fit any stereotype," says Jack Rieley, Jaye's right-hand man. "He loves clothes, he's very softly spoken for someone from the music biz and he has an enormous desire to learn.

"Thing is, most people start up a company to make a million. That's why Jaye is different. He started JFAX to fulfil a need as a consumer."

Born and raised in East Berlin and trained as classical guitarist, Jaye's first love was music. He released his first album, *We Are The Majority*, in 1993, and legend has it that JFAX was born, in true rock 'n' roll style, in a hotel room during a tour promoting the album. Three years on, the company has mushroomed to an unofficial estimated value of $50 million, with a network that extends around the globe. JFAX is currently creaming off the industry's top management, converting them to JFAX's crusade.

"The fact that Jaye has applied media business ideals to the computer industry has made JFAX such a success. It has very much the culture of a media company," says Richard Bennett, international VP of JFAX. "He's a very laid-back person with a fairly wild dress sense. Very much the music-business type."

"We were going down to Wall Street for a really top-level meeting with venture capitalists and he turned up in a pair of bright red trousers and streaked hair," he laughs. "I think it opened lot of doors for us. The next time I set up a computer company, I'll dress up like that."

As someone who is more comfortable catching an installation at the Guggenheim, Jaye is nevertheless being tipped as the next Bill Gates. A young Gates with

"Jaye has all the ingredients
to become the first true
computer industry megastar"

"I treat JFAX like a new album or a new video"

street cred; a Richard Branson without the sweaters or the facial hair.

"There's a good chance JFAX will be the next Netscape within nine months," asserts J.P. Iliesco de Grimaldi, the merchant banker and financial strategy consultant to JFAX. "At that point, Jaye will become a real star in the eyes of the public. He has all the ingredients to become the first true computer industry megastar."

Yet Jaye shies away from this enforced public persona; he's concurrently running a music career and a billion-dollar software business. People close to him believe that the time will soon come when one will have to go.

"He manages to straddle the worlds of music and business very successfully," says Paul Schindler, JFAX's company attorney and Jaye's (and Madonna's) personal attorney. "But he's got some good people in on the board now, so he can turn his attention back to the music."

JFAX: a potted history

1993 Jaye's first album, *We Are The Majority*, is released.

1994 Jaye announces he's delaying the recording of a new album to "create a low-cost means of getting faxes, voicemail and email into an universal in-box."

1995 Jaye Muller becomes president and co-founder of JFAX Communications using technology, developed by Muller, to link faxes and voicemail to an email through a telephone number.

1996 BT chairman Sir Peter Bonfield presents Jaye Muller and JFAX with the BT/*Sunday Times* Technology Award following the launch of JFAX Personal Telecom.

1997 Michael Schulhof, former chairman, president and CEO of Sony North America, named chairman of the JFAX executive committee. Schulhof declares himself a JFAX investor.

"We've been running so fast with this company for the last 18 months that Jaye hasn't had any time for his music," agrees Bennett. "He's desperate to finish his next album now. I suspect he'd like to take a figurehead role and devote more time to music and performing."

The JFAX concept is so simple; are you surprised nobody thought of it before?
Lots of people have ideas, but taking them to the point that other people can use them is another matter. I think other phone companies will try to match what we do but it'll be harder for them to match us on an international basis. Eventually, maybe, we'll license our technology to other people.

What is your vision of JFAX's future?
Firstly, we're expanding the network to 22 cities with another 22 lined up. Next, we're working on a product called JFAX Operator whereby you can access messages from any Web browser. As a JFAX customer, you could access all voice and email as well as faxes from any cybercafé, and when you walk away there's nothing left in the cache.

The second phase of JFAX Operator will be to access the same information via the telephone and an audio smart-card. You can then forward that information to a nearby machine or keep it on the server.

What kind of people use JFAX?
Individuals who travel a lot, small companies and home offices who can have everything in one place in a virtual office without having second fax lines. We're now working with WebTV to offer a JFAX number as a default, turning your TV not only into an email and Internet access device but also into an answering machine and a fax machine. That's the entry point to the family.

You're expanding quickly; what other strategic alliances have you got lined up?
We're talking to the big online providers and the IAPs to offer JFAX as an option with their dial-up accounts. JFAX is a rare thing on the Internet – it makes money. This gives the customer another reason to stay with the service provider as it expands the email box capability.

We're also talking to email software providers. Eudora came to us recently asking if everyone buying Eudora could have an option on a JFAX number.

Do you envisage a day when everyone will have a JFAX number?
I think everyone will want an email address and a way to access it, and we're creating a market for that now. However, if JFAX becomes a huge corporate organisation, then that's the point when I stop being there.

Is it true that JFAX is successful because it empathises entirely with the consumer?
I see the whole thing from the consumer side. The people in customer service were all hired by my brother Kai. He went out at night into bars around New York and asked people, "Do you need a job?"

Is it difficult running two careers?
I think the Internet, new media and entertainment industries are all melding together. From my time in the music business I know the Net has to be fun. The JFAX service has to be fun as well. I treat JFAX like a new album or a new video.

How do you feel about becoming the computer industry's first megastar?
I can't really see it, myself. I guess to have an idea is not enough. It's like writing a song but never recording it. At the end of the day, it's down to circumstances, luck and being surrounded by the right people.

Behind his back...

Richard Bennett, international VP of JFAX
"Jaye's best attribute is his deep vision of what's practical and viable for the market. He's very singular, very determined but he's not a team player. It's more a case of he comes up with the creative concept and everyone else falls in around him."

Paul Schindler, company attorney to JFAX and personal attorney to Jaye
"I first met Jaye about seven years ago when he struck his deal with A&M records. He then got into JFAX and has made a great success of it. I'm sure he'll be successful in everything he does."

J.P. Iliesco de Grimaldi, merchant banker and financial strategy consultant to JFAX
"He has an amazing natural empathy for what people need; he's not driven by a calculated motivation. I helped introduce Michael Schulhof to Jack and Jaye. He hasn't put his name to anything since he left Sony, so it was a real coup."

Jack Rieley, Jaye's right-hand man
"Jaye can write his own ticket if he wants to. He could guide JFAX into becoming a global telecoms player or, if he chooses music, then he'll make a great success of that."

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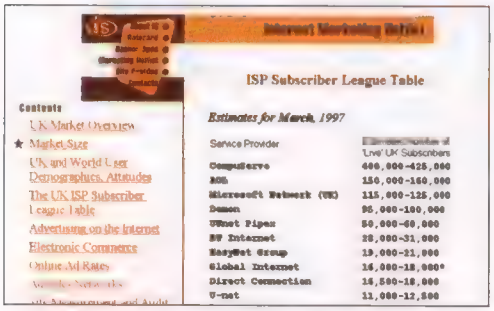
IAPs keep mum about subscribers

I'm interested in using the Internet and decided to look for the latest subscriber figures from the IAPs. However, when I asked them if they could tell me how many subscribers they had, I got some rather terse replies.

"I'm sorry to inform you that the information you've requested is confidential company information and will not be disclosed," said NetDirect Internet. "We can't give this type of information to you," replied Technocom. Only Frontier Internet Services, out of the 10 IAPs I called, gave me their figures. Is this information confidential? If it's not, what's the big secret?

Philip Bennett
phil.bennett@cad.shorts.co.uk



For details on who's subscribing to what service check out the Internet Marketing Hotlist site.

Paul Bennett (no relation) replies: There certainly does appear to be a conspiracy of silence in some quarters about access provider subscriber figures.

Internet Magazine carried out a comprehensive review of the services offered by IAPs back in December and couldn't get half of them to divulge their subscriber figures no matter how nice we were. Of course even if you do get the figures, it's wise to take them with a pinch of salt.

For the latest subscriber figures you should check out the following site, which is maintained by our esteemed former publishing director, Roger Green: www.internet-sales.com/hot/league.shtml

Graphics on or graphics off?

On the issue of turning off graphics in Web sites (Mailbox, *Internet Magazine*, April 1997), yes, I turn them off and so do most of my friends. It's a simple waste of time and bandwidth to turn them on. After all, it's called the information superhighway, not the pictorial superhighway. If I think that an illustration or sound file is going to be interesting I can always download it later.

Stefan
StefanEnd@DeathsDoor.com

I decided to look at the access logs for sites we host to see how many people turn off the graphics option when they're browsing. I found that the proportion of people who choose not to see the images is 25 per cent, the same proportion as women on the Net, the number of people not using Netscape Navigator and the number of people with VGA monitors.

Since all of these people are obviously not the same 25 per cent, anyone building a site should be wary of putting off minorities by ignoring standards and conventions.

Paola
paola@limitless.co.uk

Tony E is without a doubt in a very small minority. For most people the graphics are the magic ingredient of the Web, and are, without a doubt, one of the main reasons for the explosion of interest that the Web has seen over the last couple of years. Were it not for the images on the screen there's hardly a single children's education package, or computer game out there that would have made it to the shelves.

Ken Wright
ken_wright@athene.co.uk

Gail Robinson replies: The pictures on, pictures off debate rages on. Paola has a point here, though, it's unwise to ignore any minority that's as big as 25 per cent. This means you have to design your site for both types of users – those with graphics turned on and those that go for the text-only approach.

BT Internet has interface trouble

I was amazed when I saw BT Internet leading the field in March's *Internet Magazine*. I have a Motorola 3400 modem, while BT Internet uses Ascend technology and it appears that never the twain shall meet. The Motorola is incompatible with the Ascend technology and you either grind to a halt after 10 minutes or are disconnected from the server. If BT had admitted, as it has now done, that there were incompatibility problems, I could have simply changed my provider.

David Moore
david.d.moore@clara.net

Star Letter

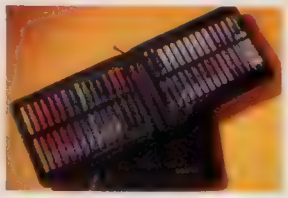
I was interested in the content of the star letter which reaffirms an article I recently read entitled "Don't believe the type". As a specialised librarian I'm an information professional, yet I still only use the Web as a last resort.

The first piece of advice the article should have given was to go to your local library. It may not be as hip or as sexy but they have been doing this kind of thing for over 100 years.

Information is probably one the biggest growth industries in the last 10 years. I spend a lot of time just skimming the content to get a feel, and to speed up the process, I do as Tony E says: I turn off all the extra bits and only when I think I've got a possible hit do I load the extras. However, there are some people doing some wonderful stuff – I never thought I'd say it, but some of the (ex) government pages are invaluable.

Gareth Lodge
gareth.lodge@herts.businesslink.co.uk

Gail Robinson replies: It's certainly true that the Internet should compliment existing sources of information, not totally replace them. As far as libraries go, though, Gareth, they often only have one copy of a book you want and they're rarely open 24 hours a day, 7 days a week.



Gareth gets this splendid Uni leather-bound writing set, packed with its colourful rollerball range. Every letter we publish also gets a packet of three high-fashion, zesty, bright Uni Eye 157 rollerballs. They're stainless steel-tipped, waterproof, fade resistant and have the smoothest ink flow around. For more details, see www.uni-pen.co.uk.

Please include your name and address in any correspondence.

Matt Whittingham, BT marketing manager replies: It's true that some Motorola 3400 modems have had interface problems with our Ascend kit. We've made efforts to communicate these potential conflicts, via our online newsgroups and telephone helpdesk.

It's unfortunate that we could not assist David Moore further in sorting out his problems and for this we apologise. We have continually sought fixes from both Motorola and Ascend – firmware upgrades for the Motorola 3400 modems (release 4.0 and above) now work well. We'll also be upgrading the software controlling our Ascend kit.

Happy-ish Virgins

I subscribed to Virgin Net a couple of months ago and am getting happier all the time. At first, the speeds were slow. We were promised 10Mb of Web space, then multiple mailboxes and then an improvement on speed. Now we've finally got our Web space and the speed has improved but we still haven't got our multiple mailboxes. What's worse, recently a power cut in Guildford put the whole service out including the news server and free space. Have you ever heard of an IAP that hasn't got backup generators?

D Sampson
D.Sampson@emarkt.com

I have been connected with Virgin Net for over two months. The connection speeds are not startling but are continually improving. But what makes me recommend Virgin Net is the quality of the technical support. The staff are friendly, intelligent and helpful and the line is never engaged. I used to subscribe to CompuServe and there the lines were either all engaged or I sat in a never-ending queue.

Jonathan Jones
john.jones2@virgin.net

Stephen Bonner, operations manager at Virgin Net replies: We did indeed promise free Web space to our subscribers, which we launched at the beginning of March. Due to popular demand, we also offered our customers the opportunity to choose from six different names for their personal Web space. Similarly, faster connection speeds to the US were requested, and again we responded with new ATM lines.

We're currently looking to offer all subscribers multiple mailboxes. This will be launched over the summer, and as promised we will deliver.

As far as the Guildford power cut goes: we do indeed have an uninterruptable power supply that means that we were able to shut systems down smoothly without losing anybody's news or mail messages. These files were delivered safely when power was restored.

Service without a smile

When will we be able to enquire about the services provided by IAPs without being deceived? Even the ISPA doesn't seem to be able to control their own members when it comes to truthfully answering questions about modem to user ratios.

Some companies, like ISPA member NewNet, are advertising ratios of 8:1 on their Home page, whilst it's common knowledge that in the UK, ratios of 15:1 would almost ensure there are no engaged tones. Is there a place for the Advertising Standards Authority or similar body? How can we prove these figures are not plucked from the air?

Scott Taunton
scott@d-n-a.net

David Kennedy, chief executive of the Internet Service Providers Association (ISPA) replies: "Members must comply with the provisions of the British Codes of Advertising and Sales Promotion, which are supervised by The Advertising Standards Authority. Therefore, if a member of public had a complaint, they could in the first instance take it up with the IAP it thought was in the wrong. They could also complain to the Advertising Standards Authority or they could complain to me, as the Chief Executive of the ISPA."

Kennedy went on to explain that the current voluntary code of practice will become mandatory from the 21st May. www.ispa.org.uk

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What's in a name

As UK companies have their domain names snatched from them by US businesses, Mike Bracken examines what it means to own your name.

It's a philosophical conceit, but what gives you the right to own your name? You have no control over your surname; your christian name probably reflects your parents' background or the fashions at the time of your birth. Just look at Moon Unit Zappa or Fifi Trixibelle Yates-Geldof. But what, apart from the drug induced stupidity of your parents, gives you right of ownership to your name.

Depending on your religion or nationality, there are traditions and rules that authorise your name, validating it in a wider community. But imagine how you would feel if someone told you you had to relinquish your name. I'd probably experience a mixture of unease, anger at a loss of identity – and a curious sense of freedom. Even if your name was taken away, however, everyone would still recognise you. It'd be a difficult but not insurmountable problem.

In real life, that is. But in the virtual world, the situation would be hopeless. If your online identity were denied, then you'd lose everything: your entrance to virtual communities as the person you now present yourself as; your ability to communicate via email; and, as businesses crawl towards the Net, possibly even your employment.

The problem is that this scenario is all too realistic given the current state of Web politics. And the dangers of maintaining your online identity are becoming all the more real as the Net mutates into a business medium. First up, the whole Prince.com situation sparked off a prolonged and justifiable moan from many non-US companies. Prince, a UK company that sells training and software products, was told by the US naming authorities, Network Solutions Inc, that it had to give up its valued .com domain name.

What happened was this. Prince Sports Group Inc, a US company, realised that this little upstart UK company, Prince plc, had bagsied the .com name. Somewhat miffed, the US company approached NSI, the much maligned registrars of the .com name. This sort of thing has happened before and, given the legal complexity of many of the cases, NSI has always washed its hands of the entire naming dispute process, instead falling back on the US courts as the final arbiters.

"NSI has always washed its hands of the entire naming dispute process"

Big problem, this. For as NSI sits back counting its substantial revenues from the .com name, non-US companies are faced with stupendously expensive legal bills in the States. It's either that or you hand over the name.

Now, though, Prince plc has thrown a spanner in the NSI works by opening court proceedings in Blighty. Sensing the mounting distrust from the Net community, NSI has meekly agreed to accept any decision that the UK court makes. This a crass avoidance of responsibility, NSI should be handling the resolution of domain name disputes – after all it makes millions from the .com name. This whole issue opens a huge can of online worms.

Let's say I have the bracken.com name. (It actually belongs to Chris Bracken, the owner of Bracken Consulting in Dallas, Texas.) Now, if I fancy claiming that my right to the name is stronger than Chris', and NSI refuses to help out, does it come down to which countries' respective legal systems are more persuasive? Will we have a legal name competition whereby lawyers from the UK and US take each other on to settle disputes in front of an international legal team? We could have *It's a Domain Name Knockout*, with Stuart Hall laughing wheezily as Web masters dressed in oversized Bill Gates costumes struggle over obstacles that look like Web pages.

It doesn't matter how a dispute resolution process for domain names is structured, but we need one, and fast. With the Geneva proposals still drying on the page, it's unlikely that the naming conventions proposed by the IAHC and others will come into effect until late this year. Their proposals for enlightened self-governance, based roughly on Swiss law, could prove workable. Until then, though, the naming dilemma will just get worse and worse.

It's unlikely that NSI will keep its monopolistic control over registering .com,.net and .org names, especially now that the National Science Foundation (NSF) in the US has refused to renew its contract with NSI. Yet the NSF, the initial protectors of those names, wants little to do with the naming responsibilities either.

Maybe the final word should fall to a real Prince. Charles is reported as saying that new media could become the eventual murderer of the soul. I don't know about the soul, but it can certainly damage your name.

Mike Bracken is deputy editor of *Internet Magazine*. You can email him on mikebr @internet.emap.com.

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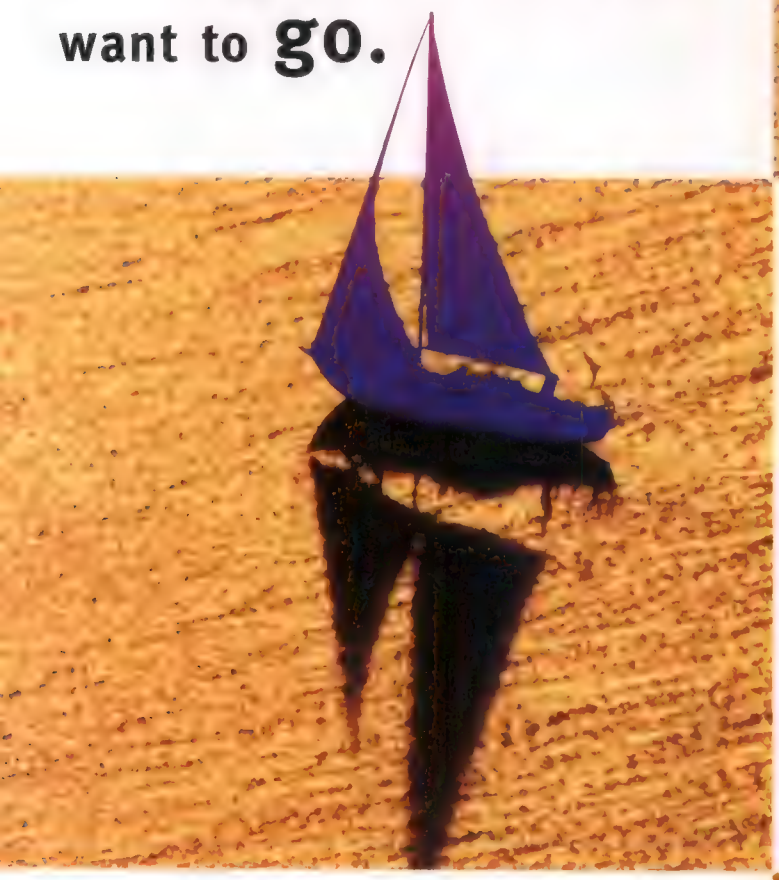

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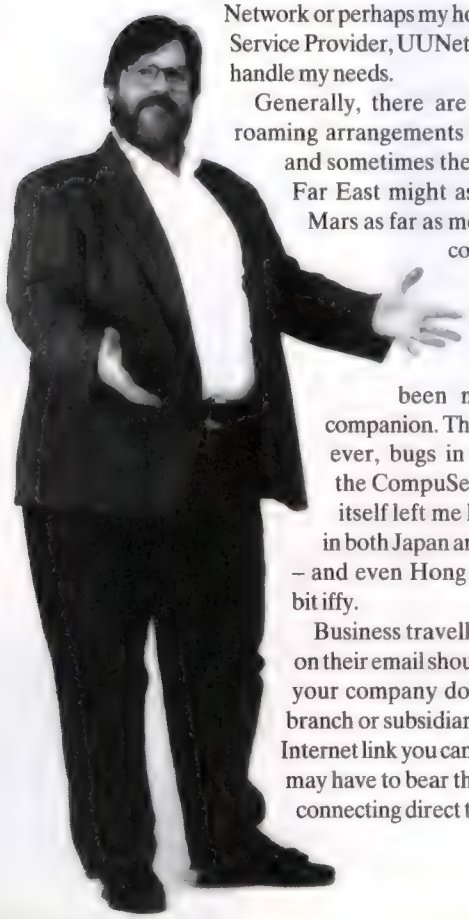
Traveller's Hell

Finding local Internet access is the international traveller's biggest headache. Paul Lavin's recent experiences in Asia have convinced him that something must be done.



The global reach of the Internet is a lie. Sure the wires go round the world, but just try connecting to one of those wires when you're away from home! And it's not just me that's pissed off – grumbles are heard from other Net-centric world travellers. My esteemed editor has been doing a bit of travelling of late and she's used some unladylike words about her Internet experiences abroad.

I've spent a lot of time out of contact with the Net this month. An itinerary that took in three stops in the US and three in the Far East didn't make it easy – I was a fast moving target. With only hours before blast off, I didn't have time to work out which IAP was best – IBM's Global Network, the Microsoft Network or perhaps my home Internet Service Provider, UUNet Pipex, could handle my needs.

Generally, there are some good roaming arrangements for Europe, and sometimes the US, but the Far East might as well be on Mars as far as most IAPs are concerned.

On my past journeys, CompuServe has been my constant companion. This time, however, bugs in WinCim or the CompuServe network itself left me high and dry in both Japan and Singapore – and even Hong Kong was a bit iffy.

Business travellers who rely on their email should beware. If your company doesn't have a branch or subsidiary that has an Internet link you can borrow, you may have to bear the expense of connecting direct to your home base – but the bills will stretch your flexible friend!

Hotels with wired PCs in their business suites are few and far between. Even those hotels that had luxurious Web sites didn't have email facilities. If I had a dollar for every face on this trip that said "Email?" I'd have enough to fund a beer barrel at the next *Internet Magazine* picnic. Even business centres, some in first class hotels, are only up to the fax level.

On the other hand, payphones in Tokyo's Narita airport not only have analogue data ports, they also have ISDN ports. Next time I'll be prepared!

"If I had a dollar for every face on this trip that said 'Email?' I could fund a beer barrel at the next company picnic."

The problems I faced getting on the Net fly in the face of the ethos of the Net – a network that's cheap, fast and everywhere. The Internet is a global network but you have to be able to get onto it locally! And the more 'local' connections you need on a given journey, the more likely you are to come a cropper.

If blagging a connection from the local office is out, you may have to pay the price for your own local email. Assuming you revisit a particular destination frequently, you could have an arrangement with a local Internet service provider which has you paying for a full-time connection that you only use part time.

But there was relief in a lovely little cybercafé in Singapore. If you're stranded without your email or need to do some business-related surfing while abroad, there is salvation in the Internet cafés. If it weren't for cafÈ@boatquay, there would have been some long faces back in Merrie Olde Englande.

Never before have I appreciated the value of having an Internet connection (and good coffee) available on an à la carte basis. What I thought of as just a trendy phenomenon actually has some business value.

Another Net-linked aggravation reared its lovely head on my trip. Businesses just aren't using the Net in a way that will deliver the rewards they want – in fact their Web site can be a negative feature of their commercial presence. We researched part of this trip on the Web, and the number of mistakes and omissions on the hotels' various Web sites were disturbing.

Fortunately the most glaring of them only cost me $15. Evidently few have learned the lesson of Virgin Airways, which had to pay a big fine for advertising a low-cost airfare that was no longer available.

More seriously for the Web, and all who sail with her, is the disappointment of your expectations that Web inaccuracies engender. If you can't trust it, why use it? If no one uses it, why invest money in it, or the management time needed to make it complete, correct and dazzling to customers? I suspect that rather too much money has been spent on making business Web sites all-singing, all-dancing multimedia spectaculars instead of concentrating on providing the core information. Back to business basics, you lot.

Paul Lavin is a consultant and journalist, writing on the Internet and related issues. He can be contacted at plavin@caversham.win-uk.net

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How to make a Net MILL

Venture capitalists are out there, chequebooks at the ready, looking to invest in the next Yahoo! David Atkinson finds out how you could get a slice of both the action and the cash.

Jerry Yang did it while he was still at college and Bill Gates does it every morning before he gets out of bed. The 'it' in question? Making a million out of the Internet.

For UK developers, however, our home-grown entrepreneurial spirit has traditionally floundered when it comes to the world of new media. Indeed, for UK companies, you'd think the National Lottery was a more reliable way to make a million than trying to raise funding to launch your revolutionary new Net idea. But as a select few businesses are starting to prove, making money and setting up an Internet company don't have to be mutually exclusive. Unipalm, Demon and Dr. Solomon's are all venture-backed companies that made the big time online and now others are hot on their heels.

So has the time finally come to recognise the new breed of UK Net millionaires? If so, how did they actually get from the ideas stage to buying that first Rolls Royce and clearing off to Rio with a sackful of filthy lucre and a *Sun* page-three girl on their arm?

"It's foolish to think the Web is where you're going to find gold," says Ajaz Ahmed, Internet consultant for AKQA. "Venture capital is one way to generate funds but in the technology industry, customer loyalty is very transient. People are wary of investing unless they know the business can be sustained overtime. Just look at Netscape. Loyalty to its browser is vanishing."

"It's not the idea that counts, but getting off your arse and doing something about it"

Paul Myers, Global Online Directory

"Besides," he adds, "the value put on technology in the UK is less than in the States. We don't encourage technology in this country."

Certainly the cultural anomaly between the UK and the US seems to be the first stumbling block on the road to fame and fortune. The US venture capital approach is frequently held up as a model for the UK, yet the two are very different. Still, analysts agree that the City could do more to encourage and foster young enterprise in the UK.

According to Steve Harmon, vice-president of business development at Internet media company Mecklermedia, "More than 85 per cent of all Internet start-ups come from the United States – more than half of those from Silicon Valley. However," he says, "we think that the UK and Europe could be an untapped hotbed for Internet start-ups and stocks if the machinery is put in place to make it happen."

Certainly the numbers are encouraging. The most recent figures from the British Venture Capital Association (BVCA) indicate that investment in high-technology companies by UK venture-capital firms doubled in 1995 to £495 million. As a result the UK currently represents 47 per cent of the total invested in technology businesses in Europe.

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Dave Filo (top) and Jerry Yang (below). These guys turned a bookmark list into a cross-media empire.

Venture capital is invaluable to a young company. Firstly, it provides a solid capital base and a strong financial backbone as the investor's returns are a function of the prosperity of the business.

Investors also provide more than just money. The non-intrusive input, wealth of contacts and experience a backer can offer provides support for management without adding the pressure of getting a short-term return.

Tips from the top

Imagine the scene. You've got an idea for a killer application – a piece of software so beautiful in its simplicity that the online community will shower you with praise, not to mention cash, when the product hits the market. Sounds easy, eh? Well here's the catch. You need money upfront. And lots of it. So how do you go about raising the necessary investment? And once established, just how do you go about making it into the new media Premiership league?

Paul Myers, director and founder of GOD, the Global Online Directory search tool/Web directory claims to have made 'a substantial amount of money from the Internet' since the company's inception in 1995. He believes in the take-the-bull-by-the-horns approach. "I had a good idea and was in the right place at the right time," he says. "You can bet your bottom dollar that loads of other people have had exactly the same idea. Everyone has a billion-dollar idea every month. So it's not the idea that counts. It's the getting off your arse and doing something about it."

GOD never went about seeking venture capital. Instead, it took the idea to Firecrest plc, a company in a similar field which it hoped would act as a kind of mentor. "With the Net there are always ways to spread the word without having to go through the usual channels, as we've seen recently in the States with some of the banner ad exchange companies," he adds.

His advice to fledgling entrepreneurs? Keep a clear vision of what you want to do and share the success with the team around you. "People get greedy," he warns, "but you need good people and you need them to respect you. Just look at Robert Maxwell!"

"There's nothing quite as satisfying as building a long-term stable business, but in the Internet world that seems very rare," he adds. "Know how long to stick with it and when to get out."

Tim Carrigan, a director at NoHo Digital, advocates a more cautious approach. His view is that just staying alive and getting to grips with the creative potential of the medium is about the best you can really hope for in the short term. NoHo focuses on exploring the multimedia possibilities of the medium with the hope that they land on something the user will find compelling.

"The Net is not a get-rich-quick scheme," says Carrigan. "We're a content-based company and there's not many content providers out there making money. It will take a long time before they will. You need to take a long-term, strategic view. You're not going to build up a new industry overnight."

Carrigan recommends Red Herring as a first port of call (**www.redherring.com**). This is a service that tracks venture capital in the US and, increasingly, in Europe. But he agrees that raising money is, on the whole, harder in the UK.

"In the UK there's not the same culture of venture capital as in the States, so you need to find more short-term alternatives to generate funding," is his advice. "UK companies haven't made their investors rich overnight. Those that have succeeded, like games companies such as Probe and Bullfrog, build the company up by generating revenues from the start and then scale up. This evolutionary model is more appropriate to the UK."

The venture capitalist view

Let's take it from another angle. Imagine you're a venture capitalist with wads of cash just sitting around waiting for someone to come along with a great idea for you to invest in. What do they look for in a potential investment?

David Quysner is MD of Abingworth Management, a company that specialises in IT investment in both Europe and the US. Quysner is also chairman of the BVCA.

"Capital is a scare commodity so when I'm approached by someone with an idea, the first thing I do is ask them to

Cliff Stanford, Demon: a million from Net access

When I sold one third of the company in October 1995 I had 2 million pounds paid to me personally. I never actually got to see what it looked like, although for a few days it was sitting in my account before being ploughed back into the company. My one extravagance was a pink Rolls Royce, which I picked up for £9,000. Sadly it got stolen and stripped.

My recipe for success is simple. You come up with one great idea in life and see it through. I can't tell you how many times I had people telling me it would never work.

I never had a vision for making a million. I wanted to offer access to the Internet at a low-cost and nobody could offer me that service. It all started from me wanting that service. At first it was a sideline. We had a really successful software business which I guess helped a lot as we were already working in that field.

I've never wanted to put my feet up and take it easy. I've certainly no desire to sell out. I've got at least 10 to 15 years working at this pace ahead of me yet before I'll even consider it.

My advice to any young entrepreneur would be to see it through. Work out what would be the worst case scenario for you and, as long as that doesn't turn out to be complete bankruptcy, go for it.

cliff@demon.net
www.demon.net/

D.K.Matia, mi2g: a million from Net applications

I'd been working as a senior consultant with the MEC group since the early Nineties on Psion hand-held computer systems, and I put forward a business plan to the founder of MEC to allow me to set up mi2g as a separate company, within the MEC group, to develop Internet applications. They agreed to provide us with contacts, accommodation and support, until we found proper capital funding, in return for a 10 per cent share holding. This made mi2g appear larger than it was and also gave us a credible reference.

We then set up a the concept of holding a free, open Internet seminar every second Wednesday. We invited all the contacts which I had established over the past six years, both in business and banking, to see what mi2g does as a company. One of MEC's contacts, John Wood, Chairman of Trilateral Communications (part owned by Hambros Bank), became very interested in what we do. His group had been looking to invest in an Internet company. They bought a 2.5 per cent stake in mi2g's authorised share capital in early September last year.

This investment was particularly useful for mi2g because this gave us membership of Hambrolink, which in turn gave us a platform to access a variety of high level contacts in Hambros Bank and subsidiary companies like Berkeley Insurance and Hambro Countrywide.

dkm@mi2g.com www.mi2g.com

Who's made a million on the Net – and who will

Despite the hype about Bill Gates turning Microsoft into an Internet company, many of the Net millionaires actually made most of their money from pre-Net software. However, there's a growing breed of new-media moguls bringing home the bacon...

$ Marc Andreessen, VP Technology, Netscape, worth $120 million
Andreessen is the original Net mogul. He metamorphosed from bright researcher at the University of Illinois to Net pioneer, after developing an XMosaic browser for HTML. Spotted by SGI boss Jim Clark, Andreessen and fellow academics were hired to form Netscape. The company had a flotation value of more than $1 billion. This little share-fest propelled Marc, Clark into the financial stratosphere.

$ Rob Glaser, CEO, Progressive Networks, worth $75 million
As Progressive Networks corners the market for audio and multimedia on the Web, the company's worth rises daily. Currently without a market offering, it's value can only be guessed at, but bids from Microsoft are expected in a huge envelope.

$ John Doerr, partner, Kleiner & Perkins, worth $350 million
The venture capital (VC) king, Doerr raked in cash from the Netscape bid. A partner at West coast venture capitalist Kleiner Perkins Bayer Caulfield (KP), his involvement in Net VC has netted him upwards of $300 million.

$ Jerry Yang and David Filo, founders, Yahoo!, worth $150 million. Each!
Beavering away at Stanford, Jerry and Dave started to compile the growing number of Web sites into a central resource for their friends. Less than four years later, Yahoo! is a public company with revenues that continue to impress analysts and investors alike.

$ Chris Hassett, President and CEO, PointCast, $who knows?
By the time you read this, Mr Hassett may be hugely rich. With PointCast push technology stealing the market, Hassett has turned his software into a de facto standard. With Rupert Murdoch currently haggling over the odd $100 million to buy out PointCast, Hassett's market value could be huge.

$ Halsey Minor, president and CEO, Cnet, worth $40+ million
The Computer Network has blazed a trail in Web publishing. Minor's major advantage has been the tailoring of content to the media.

$ Kim Polese, CEO, Marimba, worth $15m
Marketing and technology: never the twain shall meet. That is until Ms Polese took over the Java team at Sun, kept it together in the face of management interference then lead the team out the door to start up Marimba.

● Estimated figures from www.netmoguls.com/

So much for those who have made cash from the Internet. What we're really interested in are those folks likely to make big money over the next year. As you'll have noticed, those in the millionaire list have all made their money in the US, so we were also looking for UK money spinners. Listed below, you'll find *Internet Magazine's* tips for next year's Net millionaires...

£ Steve Bowbrick and Ivan Pope, joint owners, Webmedia
Webmedia was one of the first Web design companies in the UK and last year had a welcome influx of cash from Maurice Saatchi's investment company, Megalomedia. The company has some big name clients including, Lloyds Bank and EMAP. These guys also have a stake in the biggest UK domain name registration service, NetNames.
www.webmedia.com

£ Maurice Saatchi, owner, Megalomedia
OK so this guy has already hit the million, but he is investing heavily in Net companies and could see some real return on investment this year. His existing interests include Cyberia, Graduate Appointments and The Multimedia Corporation.
www.megalomedia.com

£ Lenny Barshack, boss of Bigfoot
Bigfoot was the first to market with a personal email directory service and the company has built up a huge directory of personal details. This will make Bigfoot a key player as more people join the Net and look to try and track down their mates online.

£ Sherry Coutu, managing director, interactive investor
Sherry is the woman behind the prestigious interactive investor Web site. Founded in 1994 it's won a batch of awards and is a valued source of investment info.
www.iii.co.uk

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fax me a short synopsis, then post me their business plan with a consideration of what kind of returns could be made," he explains. "Our members are less interested in backing technologies than actual businesses, hence we need to know if the person has the ability to run a business. We finance businesses, not ideas."

BVCA members look for big projects. The smallest amount they typically invest in a company is between £100,000 and £250,000. Smaller amounts are generally raised from private investors. The BVCA's ultimate aim is not to get its money back. It wants to back a company that could eventually be floated on the Stock Exchange or sold to a trade buyer. As such, long-term strategy is key.

So there it is. If the idea is good, you do the research and get your business strategy clear. Sorted. But is it really that simple for us Brits? Or is the enterprise culture of post-Thatcherite Britain one where money is still too tight to mention?

"The ethos of British business is very different to the US. The English seem to be embarrassed about how much they earn. It's a strange financial jealousy," says Trevor Beattie, creative director of GGT advertising. "Besides there's nowhere near as much creativity on the Net as there should be. It's dull and it needs to evolve into an everyday tool rather than just a piece of technology. The person in the UK who recognises this will be the one who makes a million."

"I would advocate caution, especially for people in the UK, as we still lag behind the States," agrees Carrigan. "Remember there's a million ways for a Net company to go bust."

So for all you nascent Net millionaires out there, it seems patience could be your greatest asset. Anyway, who wants to be a millionaire?

Err...I do.

David Atkinson (davida@internet.emap.com) is a reporter for *Internet Magazine*.

Grahame Davies, Easynet: there's money in dial-up

I sold my shares in Demon Internet in early 1995 and immediately invested in Easynet. We soon opened up in France, then floated on the Alternative Investment Market of the London Stock Exchange. By reinvesting time, as well as money, I now have a tremendous opportunity to build up a substantial business.

Ideas can be funded in lots of ways. If you have invested some of your own money (saved, borrowed, mortgaged) then you'll normally get a better reception from a prospective investor. Naturally, you should try to hold onto as much equity in your business as possible and you should make sure that you don't have to go back to your investors regularly for more cash.

You should consider taking less cash but with an agreement that you can invest like-for-like should the business take off and your personal circumstances allow. If you go for big, institutional investment you'll need advisors and you'll find that commissions will take a large chunk of the investment.

grahame@easynet.net
www.easynet.net/

Million-pound contacts

www.brainstorm.co.uk/bvca
The representative body of the UK venture capital industry.

www.redherring.com
The favourite magazine of Oracle's Larry Ellison. Practical advice for investors and VC seekers alike.

www.kpcb.com
Insider views and news straight from The Valley.

www.ac.com
Management consultancy with a global network of contacts. Site hosts a discussion forum on management theory and technology issues.

www.moneyhunter.com
Details on creating business plans and successful forecasting.

www.lifestyle.com/beq.htm
Collection of UK-specific VC resources.

www.btinternet.com/~futurestart
VC resources for small businesses.

www.ukbusinessnet.com
Wealth of advice for start-ups.

Top tips on how to make a million on the Net...

1. Be first
If you've got a good idea, act while the others are still thinking about it. Follow Netscape's example. You snooze, you lose.

2. Be flexible
Don't run with too many ideas at once. Concentrate on your core skills and refine them to suit the market.

3. Overachieve
Don't promise the earth. Then if you deliver, you quickly become an overachiever.

4. Work harder than the rest
Start early, stay late, work weekends. There aren't many millionaires who hate their jobs.

5. Market your products and services
Use the Net to let everyone know you're out there.

6. Try licensing and bundling deals
Adding your product to an existing market leader can be very lucrative.

7. Offer free versions of your products and services
Freeware is a great way to build loyalty. That's why Microsoft and Netscape give away their browsers.

8. Reaction marketing
Use the Net to listen to your users. Get feedback, then act on it.

9. Act locally, sell globally
Sell your products all over the world to broaden your customer base. And, if your product isn't country-specific make sure you have information in several languages on your site.

10. Make a clear business plan
See www.moneyhunter.com to find out how to create that all important plan.

11. Don't keep on gambling
Financial markets are unlikely to be impressed by empty promises, even small revenues can reassure investors.

12. Do your research
Use the Net to research your market and find your niche. User surveys, email replies will all help here.

13. Diversify by broadening your range of products and services
Certain features of your product could become products in their own right. Look what Yahoo! did with My Yahoo!

14. Sell something
Use commerce and merchant servers to bring sell your product or service online.

15. Move to the States
It's a radical option but it does mean that your chance of raising money will be 10,000 to one instead of 100,000 to one.

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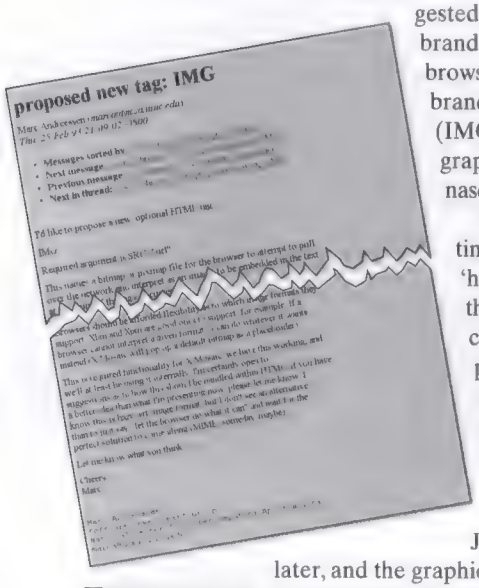
Altered Images

The Web is causing a revolution in the way images are handled. As standards are agreed on and hardware companies produce low-cost gadgets capable of producing high-quality images, Garret Keogh looks at the key players and offers advice on how to make sure you snap up the best products and services on offer.



Who'd have thought the little old IMG tag would change the way we think about graphics?

On Thursday 25th February 1993, the Internet became a graphical medium. In a posting to a developers' discussion group Marc Andreessen, soon to be Netscape mogul but then still a researcher at the National Center for Super Computing Applications, suggested a new tag to the brand new Xmosaic browser standard. The brand new image tag (IMG) brought graphics to the nascent Net.

Despite admitting that this was a 'hazy format until the perfect solution comes along' this posting ushered in a new graphical media that has transformed the use of images the world over.

Just four years later, and the graphical nature of the Web has revolutionised the Internet. Now the Net is undergoing a second graphical revolution as the worlds of photography and multimedia merge. From posting your holiday snaps to accessing online libraries of millions of classic images, the Web is evolving from a series of linked documents to a kaleidoscopic world of high-quality images from professionals and amateurs alike.

Snapshot on technology

A number of important factors are driving this development, but primarily it's because of agreements between hardware and software manufacturers on a new set of standards. Both hardware and software companies are desperately pushing what is, potentially, a huge consumer and business market. Digital imaging hardware manufacturers such as Kodak and Hewlett-Packard are banding together under the FlashPix standard. Meanwhile, Microsoft's head honcho Bill Gates, continues to invest in his Corbis project which goes some way towards the aim of digitising the most famous images in the world.

Get your images online

In its simplest form digital imaging begins in the home and on your desktop. Putting images on the Net is a simple but compelling application. There's a basic human desire to see the faces behind the Web pages, a business need to see the products for sale and an aesthetic demand for viewing images from the worlds of art and history.

Getting images from traditional media and creating new images is being facilitated by a new generation of digital cameras and scanners. Tools that were previously only in the hands of professionals are now available in high-street stores, and at a fraction of their original cost.

Digital cameras

The main photographic hardware companies have been quick to get on the digital bandwagon and have been developing systems for a number of years, with varying success. Until now systems have been expensive and aimed at specialist markets but low-cost digital cameras now have a market eager to snap up hardware.

Within seconds of taking an image you can easily upload it to your Web page. Images are simply saved into the camera's memory for easy downloading into you computer. Many of the latest cameras also have colour LCD screens so you can view images in the making and delete the snaps that don't do you any favours. With a plethora of new cameras arriving on the scene, there are a number of factors to keep in mind when choosing a digital camera.

Quality check

The first thing you should think about is the quality of the lens. You should consider a camera that offers a number of different lens options. Most of the cheaper models only offer fixed-focus shots. These are only suitable when a snapshot is acceptable. Some digital cameras have zoom functions and also allow you to add additional lenses.

As important as the quality of the lens is is how much memory the camera has. This determines how many pho-

Digital cameras

Not surprisingly, traditional camera manufacturers, eager to ride the next wave of photography, dominate the digital camera marketplace. At about the £500 mark are models from companies such as Apple, Kodak and Casio.

- Apple has just released the QuickTake 200 with a new design, improved image quality and a revised software bundle. It takes excellent pictures in a wide variety of conditions and transferring images to your PC couldn't be simpler – all for £400 (see page 76 for a full review).
- Casio's innovative QV-100 includes a LCD panel but no standard viewfinder. At £587 the camera is at the lower end of the market but it can upload images to you computer via a 57.6Kbps link.
- The FujiFilm DS-7 is £703 and uses a tiny 2Mb card to store images. It has three focus levels and an LCD panel.

In the £900 range, Canon, Olympus and Ricoh have impressive models.

- The Canon Powershot 600 costs a hefty £938 but uses a PC Card to store

tographs you can take and store. Memory capacities vary widely between manufacturers and many use some sort of compression technique when storing images. As a guideline, with 1Mb of memory you'll be able to store between five and 16 images at a resolution of 640 by 480 pixels or between 32 and 88 images at 320 by 200 pixels. You'll also need to look at the compression technique your camera uses. The more the image is compressed the lower the picture quality.

Manufacturers are already improving on this restriction in memory. The future seems to lie in cameras that use credit card-size PC Cards to store images. Prices are still high, but manufacturers such as Kodak and Chinon are already shipping systems.

images. This holds an impressive 170Mb worth of images. Surprisingly, the camera even has a built-in microphone for the annotation of images.

● Olympus' 800-L has a whopping 6Mb of internal memory, although it there are no memory expansion options. The camera can handle resolutions of 1024 x 768 and 512 x 384. The camera has a built in flash and can transfer images to your PC via a 115,200bps link.

● Ricoh's unusual looking RDC-2 offers three resolutions going up to 768 x 576. It also has a wide-angle lens and LCD preview panel. However, the price tag of £999 places it at the high end of the consumer market (see page 75 for more details on this camera).

High-end digital cameras

● The Polaroid PDC-2000/60 looks like no other digital camera and has a £3,800 price tag that puts it in a league of its own. Images are stored on an internal hard disk and the camera offers resolutions of up to 1,200x1,600. The camera also comes with its own software package and images are transferred via SCSI cable.

● For those serious about digital photography, The Kodak DCS410 is the mother of all digital cameras and costs a breathtaking £6,456. The device uses a 170Mb PC Card disk and the camera itself can hold up to 100 images at a resolution of 1012 x 1524. The price ensures you're going to get high-quality digital images with a wide range of focussing and exposure options.

Transferring images

Most cameras use a serial cable to transfer images to a PC and although download speeds can be slow, especially with a full batch of pictures, the simplicity of this method is part of its success. Over a normal serial connection the transfer can take about a minute per image. However, it's still pretty fast if you compare that to a trip to Snappy Snaps!

Children of the resolution

Most cameras offer a choice of low-resolution (320 x 240 pixels) and high-resolution (640 by 480 pixels) images. Although memory constraints may suggest using lower resolution images, when it comes to editing and manipulating these images later, a higher resolution is more effective.

It's really a case of how you want to use these images and you should look for a camera that at least offers a choice of resolutions.

Getting your images online

Once you've collected your images, integrating them effectively into a Web site is your next task. Choosing an image format is the first stage in that process. There are only three image formats that any self-respecting Web page author need consider – GIF, JPEG and the PNG. GIF was originally designed for use on CompuServe. This has emerged as the main image format on the Web and all browsers are equipped to deal with it. GIFs can be downloaded in an interleaved format, which means

Copyright

Copyright and the legality of using images on the Net

It's important to dispel a number of myths about Internet copyright. The cut-and-paste nature of Web development sometimes leads to the belief that the rules of copyright are somehow different on the Net.

The basic rules of copyright, as defined in the Berne convention, apply on the Net just as they do in other media. The Berne Convention for the Protection of Literary and Artistic Works (www.wipo.org/eng/general/copyrght/bern.htm) was originally developed in 1886 and is adhered to by 121 countries. This protects the rights of the creators of the original work. Photographs and images are treated in the same way as works of art and copyright doesn't expire after a period of time.

Just because something doesn't have a copyright notice, it doesn't mean you are free to duplicate that image on your own site. In most cases if the image was created by someone else, you need to receive permission to use that images. Contacting the owner of the image allows you to obtain a licence to use that image. With commercial images you must pay for that licence and abide by any conditions or restrictions on use of that image.

Protecting multimedia documents and images from copying is a difficult task. One way of keeping some control over your image is to use digital watermarking. This marks the original work as the property of its owner or creator and can then only be detected by special software. The watermark contains a range of information on the image, its creators and any conditions for its use, and remains detectable even if the image is converted to another format.

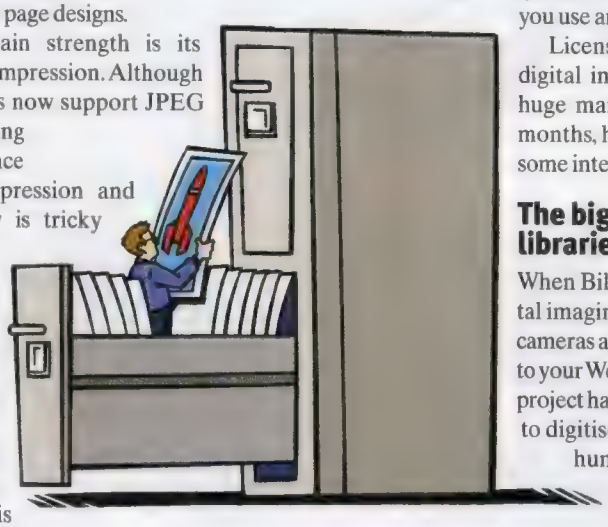
There are a number of different watermarking tools. The first is a UK-devised system known as fingerprinting and used by companies such as UK-based HighWater FBI. Another system, devised by NEC, uses hidden numbers within the documents. Other systems use digital keys, which can be used to translate hidden information from within the details of the image. A number of clear market leaders are starting to emerge and companies such as Adobe are including watermarking features in their imaging software.

Check out these watermarking technology vendors:

DICE Company
www.digital-watermark.com
Digimarc www.digimarc.com
HighWater FBI www.highwaterfbi.com
Fraunhofer Institute for Computer Graphics http://syscop.igd.fhg.de

that the basic image can be downloaded first, gradually increasing in resolution and quality. GIFs can also be transparent, and so be integrated more seamlessly into Web page designs.

JPEG's main strength is its support for compression. Although most browsers now support JPEG images, striking the right balance between compression and image quality is tricky to achieve and many designers are sticking with dependable higher quality GIF images.



The new kid on the images block is Portable Network Graphics (PNG). The plan is for PNG to replace GIF. The main advantage to PNG is the combination of JPEG or better compression and a wider range of colours than available in the GIF format, as well as greater control for the creator as to how the image appears regardless of what machine it is viewed on.

PNG was endorsed by the World Wide Web Consortium (W3C) in late 1996 and is part and parcel of some imaging programs, such as Adobe Photoshop, and best of all, it's subject to no patent restrictions, so it's more likely to be widely adopted as a standard.

Using imaging software

To get your pictures into the right image format and online, you'll need imaging software. Many of the cameras include software packages of one type or another and most can save to some industry-standard image format.

Thankfully, there are also a lot of shareware packages that offer more advanced features. One of the most popular graphics programs of recent years has been Paint Shop Pro, available in shareware format and containing some very advanced features, some only matched by professional photo manipulation tools such as Adobe PhotoShop. You can download Paint Shop Pro from www.jasc.com.

Someone else's images

All this effort taking shots and transferring them to your PC will be a waste of time and money if the images you want are already online. Professional image banks and online libraries offer millions of images. You pay for licensing the image and the cost varies on how many times you're going to use it. Despite Internet myth everything that appears online is not public property. You must get the permission of the owner before you use any images.

Licensing and controlling digital images is a potentially huge market which, in recent months, has seen the arrival of some interesting players.

The big digital libraries

When Bill Gates discusses digital imaging he talks not of £500 cameras and adding family snaps to your Web pages. Gates' Corbis project has no less a mission than to digitise the entire sum of all human knowledge. To do this, the company has six Scitex scanners – each costing half a million dollars.

The Corbis archive grows at a rate of 40,000 images a month and now includes about 1 million digital images. This includes the best of the world's photography, archival material and fine art in digital format.

Which scanner?

Another way of getting images onto the Internet is via a digital scanner. If you have a lot of existing content that needs digitising, a scanner may be your best bet. Again, you pay for quality and it may we worth spending the money on a good quality flatbed scanner rather than going for a cheap hand-held model.

Scanners have come down in price and increased in quality over the past few years. Even the simplest flatbed scanners offer resolutions starting at 300dpi with 24-bit colour, and prices are typically less than £500. Flatbed scanners work in a similar way to photocopiers and although 300dpi doesn't sound much when compared with printers, the quality of even the cheaper models is pretty impressive. At the bottom of the range are scanners such as the Spot Scantak 2c which costs just £169, offers 24-bit colour and has its own proprietary connection interface. That's still a pretty impressive price for a flatbed device.

If you have a lot of images that need digitising then speed might be as important as resolution. Nikon's Scantouch 110 costs £399 and uses a single scan head, which speeds things up considerably. Hewlett-Packard's Scanjet 4p is one of the most popular models on the market and costs £430. This uses a SCSI interface for connection and can also double as a photocopier. The resolution is 300dpi but some fancy software techniques allow you to increase this to 1200 dpi.

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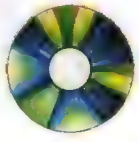
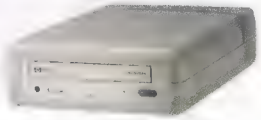


FREE CD

HP SureStore CD-Writer 6020i



HP SureStore CD-Writer 6020ep and 6020es

Corbis also owns the rights to the 16 million-item Bettman archive, a purchase that set Gates back a cool £6 million. The Bettman archive is considered by many to be one of the world's most impressive collections of drawings, historical documents and film footage.

The future for Corbis

In its simplest form, Corbis acts as a traditional film library offering images for licensing and it uses the Web to offer this service. Prospective clients and visitors to the site are tempted by a daily image chosen for the collection. Corbis also plans to introduce a selection of tempting CD-ROMs in the coming months with content based on the archive.

However, the real applications and size of the market are as yet unknown as no one has really undertaken such a venture and there is no tried and tested business model. Gates' deep pockets are crucial to this project – the company doesn't predict breaking even for five to 10 years.

However, Gates isn't the only one with the vision and financial clout to develop such an archive. The Getty Foundation is also working on building its own archive. Gerry Communications is responsible for the Hulton-Getty collection of archived images. This library, which plans to hold more than half a million images by the end of 1998, is available at http://getty-images.com.

In the can

What is apparent is that if big players such as Gates can see a potentially huge market evolving, then there must be something in it. However, the applications and scope of this area are still unclear.

As hardware costs are driven down, more and more people will make use of the impressive equipment available. And the Web can only become a richer environment, with an influx of high-quality colour images. New hardware incorporating rapidly advancing multimedia technology and improved displays, along with increased modem speeds, means that systems are now equipped for a more graphical Net. This digital imaging revolution could be the compelling technology that brings the rest of the planet to the Net.

Garret Keogh (garret@dial.pipex.com) is a freelance journalist who writes about Internet technologies and new media.

Top imaging and photography sites

Here's a collection of some of the best imaging sites on the Net. We've also included some useful online resources as well as examples of sites that use digital images particularly effectively.

Corbis
As discussed in the feature Gates' Corbis archive holds over 1 million images.
www.corbis.com

Press Association Image of the day
A topical image from one of the UK's leading news sources.
www.pa.press.net/photos/potd_index.html

Life Magazine picture of the day
Once the source for the world's best photojournalism, now online.
http://pathfinder.com/Life/pictday/pictday.html

Agfa
Agfa's photography site discusses industry trends as well as featuring a monthly professional photographer's portfolio. It also gives you the chance to post your pictures as part of its surfers' gallery.
www.agfaphoto.com/

Digital Moments
Doug Menuez's beautiful images in a stunning site as featured in David Siegels' excellent Creating Killer Web sites book.
www.menuez.com/

Cyber Funk Café
An online directory of photographers and their portfolios.
www.cyberfunkcafe.com/

Dast Library of photography
A great set of links and resources for photographers.
www.dancris.com/~dast/

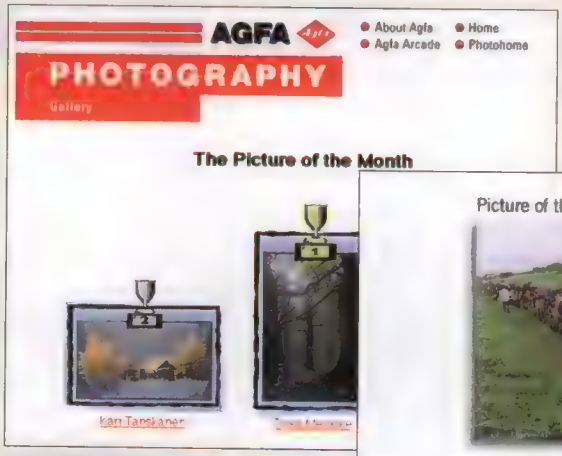
For a spectacular collection of artwork visit the Corbis site.

Photo District News
The online version of the professional photographers' magazine.
www.pdn-pix.com/

A time to die
A breathtaking piece of photojournalism that shows what both digital images and the Web are capable of.
www.projo.com/special/noel/toc.htm

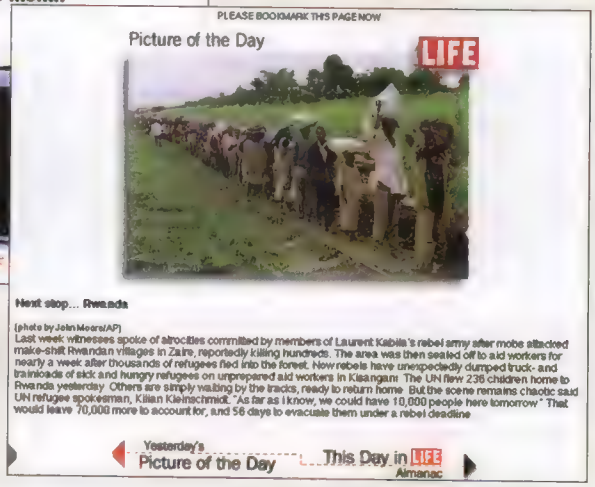
One of the excellent images from Digital moments.

In-Focus
UK-based news picture agency.
www.yorkshirecoast.co.uk/in-focus/



The AGFA site includes professional photographer's portfolios.

Generic Concepts
Royalty-free images for corporate use
www.generic-concepts.ltd.uk/



Life Magazine's Picture of the Day section is well worth a visit.

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Yukon ISDN	£995
Amazon POP	£6,250

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ISDN + Leased Line	£699
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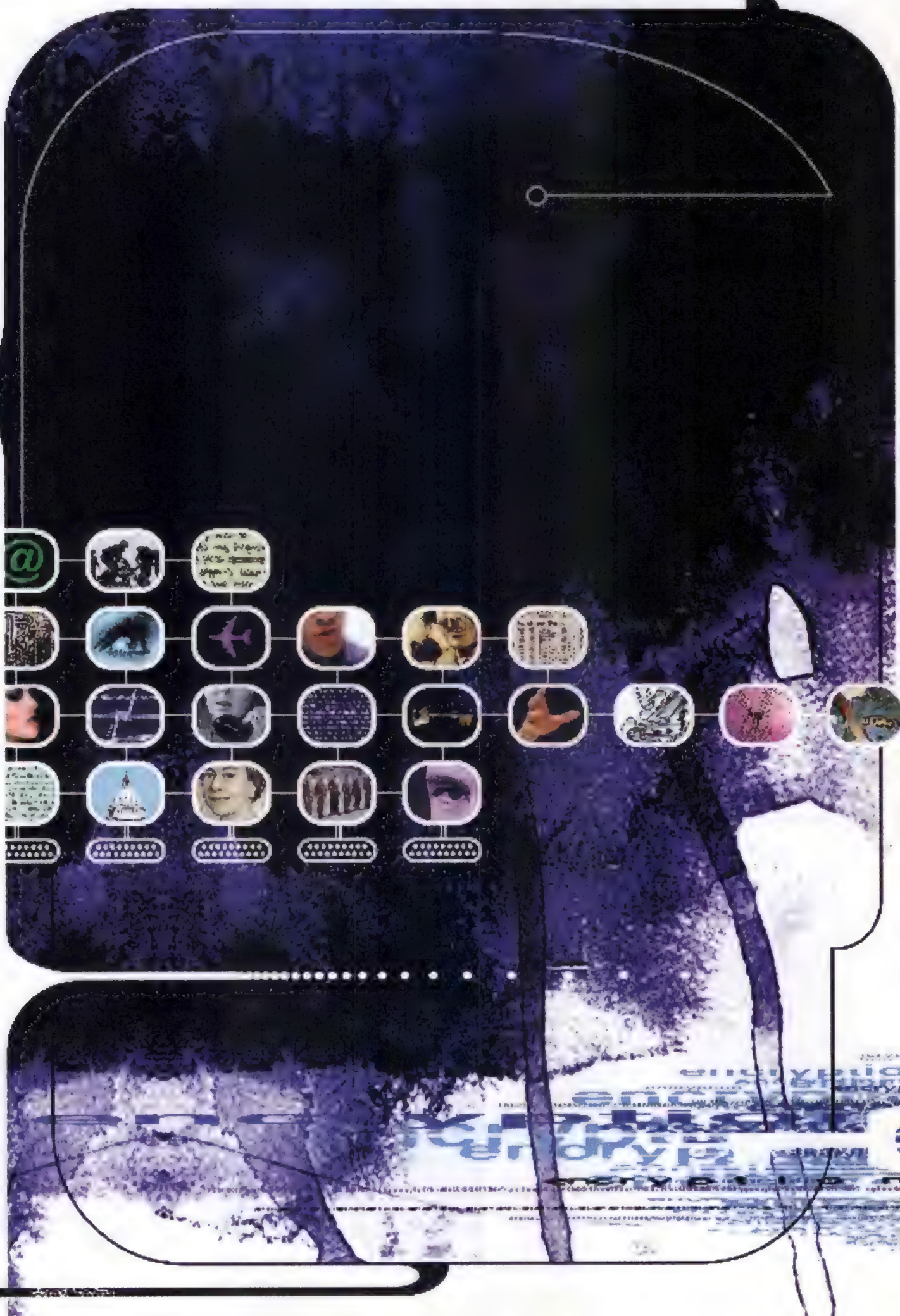
Insecurity Complex

Internet crime may be grabbing the headlines, but very soon all Internet traffic will be encrypted and authorised to guarantee data security. Until that time, Bill Thompson shows you how to keep your data safe, and Mike Bracken looks at the battle over encryption that will control who reads your data.

A lot of effort goes into building secure connections to the Internet for big businesses, with firewalls and filters everywhere. The poor old dial-up user doesn't get much of a look-in, and yet the security problems are very real. Once your computer – either at home or in your small business – is connected to the Internet over a dial-up line and bits are flowing between you and the wide, networked world, the potential for disaster is there. The only way to keep a computer safe is not to connect it to anything else – but, hey, what fun would that be!

While a home PC user is unlikely to be the victim of online espionage, anyone who fails to take some precautions will probably lose important data and have their personal privacy compromised at some time in their online life. This is not a threat – it's a guarantee.

The dangers for the dial-up user are the same as those faced by a business; people will use the network to try to steal information, damage your system or just cause trouble. If you connect from home you're unlikely to have the time to keep up-to-date with security problems, install software patches, or regularly change the passwords you use to access Web sites. You probably don't even have time to make a back-up of your data.



How you can protect your connection

There are several security steps every dial-up user should take:

1. Know who you are online

The key to your computer is the IP address and domain name it has when connected to the Internet. Some dial-up services (like Demon) allocate a fixed address/name, others (like UUNet) give you a random address/name drawn from a pool. You should know what this address is, since it's available to every Web site you visit and attached to every email you send.

2. Check the services you are offering

If you have a sign in your window saying Room to Let you wouldn't be surprised if strangers tried to move in. Most common Internet services, like the Web, FTP, mail and Telnet, are based around a client/server approach. If your computer is running a server which can accept incoming requests – like the Microsoft Personal Web Server – you should either disable it when you're online, or take the time to set it up securely.

3. Keep up-to-date

Subscribe to the security mailing lists and newsgroups listed below, and take note of the ones relevant to your system. If you're especially paranoid, then ask your IAP to confirm that it's doing the same thing – a break in at their side could give a hacker the information they need to steal your email or worse.

Keep a list of all the Internet software you use, so when a patch for a security problem is released you can download it.

Don't use old cover disks. There are millions of AOL cover disks in circulation and they all contain a version of Microsoft Internet Explorer 3.0 that has a massive security hole in it.

4. Use encryption and digital signatures

You may not want to encrypt everything you post – most email is neither compromising nor interesting – but you should sign it. A forged email to your boss could damage your prospects, and it's frighteningly easy to make plausible email forgeries.

Pretty Good Privacy (PGP) is the most useful way to do both encryption and digital signatures, at least until the Web Consortium agrees its signature standard sometime later this year. Eventually all Net traffic will be validated, signed and encrypted, but while you're waiting, do it yourself.

5. Safeguard your data

You may want to consider encrypting your hard drive so that even if someone gets to read it they can't make sense of what they find. You should certainly back it up. The best approach is to make a full system back up and archive it, then to back up changed files regularly, so you can find and restore a single file, or just rebuild your system on a new hard drive.

6. Check for viruses

Installing software you've downloaded from an unknown Web site is a bit like smoking a cigarette given to you by a man in a dirty mac who crawled out of the gutter: you shouldn't be surprised if it has a strange effect. As a bare minimum, check all executables with your usual virus scanner, make a note of where it came from and check USENET (www.dejanews.com) for postings about it. Take software only from approved sites.

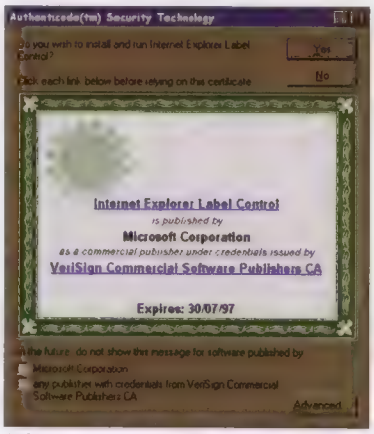
When you install software, note where you got it from then revisit that site regularly to check for security notices, and bookmark that page. You may also be able to subscribe to mailing lists or newsgroups that are concerned with security problems in the applications you use. Some sites – like the Microsoft Internet Explorer site – will look to see what version of software you're using and even advise you to upgrade.

This puts you at risk, and you'll have to work to reduce that risk.

Dial-up security issues fall into three areas: the connection, the software and the data, although some problems cross all three.

The Connection

An Internet connection moves bits between computers. The connection is the focal point of any security problem, and that's why corporate networks are isolated from the global Internet by firewalls and filters. Most Internet access providers (IAPs) will offer secure connections to their business customers, blocking unwanted Net traffic and insecure protocols like the Trivial File Transfer Protocol (TFTP). But because dial-up networks are used by lots of people with different needs, they're more open, and this creates security problems.



Software exists which will verify the safety of the code you're downloading with a certificate

Another problem is that the IAP has to know a lot about you – not just your financial details – to provide your connection. If the IAP doesn't take security seriously then you may find that your network connection is being tapped, and since most of the traffic is sent as plain text (like log-in passwords for Telnet sessions, or email via SMTP) it can easily be observed.

The only safe thing is to assume that all of the traffic between you and your IAP is being monitored, and to act accordingly. Imagine that envelopes had never been invented and all mail, even your tax return, was sent on postcards; it's the same on the Internet. Encrypt sensitive information, and divulge personal data with caution. You don't have to tell the truth when you register on a Web site.

A Web server has to know your IP address to send you pages, and a user on the server computer can easily discover your address by looking at the Web server logs. They can then try to connect to your computer using FTP or Telnet – and if you're still connected and running a suitable server they may succeed.

If, for example, you install Microsoft FrontPage and the Personal Web Server on your PC and edit your Web sites while connected to the Internet, beware. The server will happily respond to requests from anyone over the Internet unless you remember to set the security features.

Software

We all use a wide range of Internet software, often without looking closely at who wrote it or where we got it. Many dial-up users are content to download a piece of shareware from the Net, install it and run it. The assumption seems to be that if the software has a Web site and an installation program then it must be okay.

But the software used on today's Internet isn't fully secure. Some of the major bugs discovered have included:

- Problems with the Navigator 2.0 implementation of Java that allows a malicious applet to access the user's hard disk
- Problems with JavaScript under Navigator 2.01 (see www.osf.org/~loverso/javascript/ for details)
- The big hole in Internet Explorer 3.01 that lets a user execute any application on your computer by referencing it as a URL shortcut (see http://home.microsoft.com/reading/security.asp).

All of these problems are well known and have been fixed; patches or new versions of the software are available. But there are millions of cover-

Net scams are rife

A recent Net scam involved encouraging users to download a viewer program so they could load pornographic images.

When the viewer ran it showed the images, and it also sent a control message to the user's modem which silently disconnected the current connection and telephoned a modem in the former Soviet republic of Moldova, running up massive phone bills on a premium rate service.

At least two Web sites – [redacted] and [redacted] – used the program to make international calls, although neither is still online.

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How you can protect your connection

7. Stay out of the archive

Personal information about you is stored all over the Net. This may not be a problem for you, but you might prefer that your boyfriend not read that posting to alt.sadpeople.trainspotters.

When posting to USENET you can add an extra header – X-no-archive:yes – to the posting, and the main USENET archives (Dejanews and AltaVista) will respect this request. You can also use an anonymous remailer or get yourself a separate, anonymous account.

Many people have also taken to putting incorrect reply-to fields in their USENET configurations, so bill.fake@dial.pipex.com will be picked up by programs that scour USENET looking for addresses to put on scam lists instead of bill@dial.pipex.com. Plus, if you don't use your browser's email capability, you should set its email address to a false value, too.

8. Manage Your Cookies

Cookies have become the Web equivalent of those tracer bugs they use in police shows. Companies like Doublclick put a graphic on every page of the Web sites run by its clients, which allows them to track your click-stream around the Web and build up a marketing profile for you. They then use this to present appropriate advertising as you surf. Other unscrupulous folks could use cookies to check your political affiliation (a lot of time on the Labour Web site), sexual preferences (hanging out with Hugo Boss) or job satisfaction (regular visits to RecruitNet).

The key thing about cookies is that you don't have to accept them and you don't have to keep them. Some browsers, including Internet Explorer 3, will notify you when cookies are sent, and give you the option to decline them. Or you can accept all the cookies you get during an online session and use a utility like Cookie Monster to look through them and delete the ones you don't need.

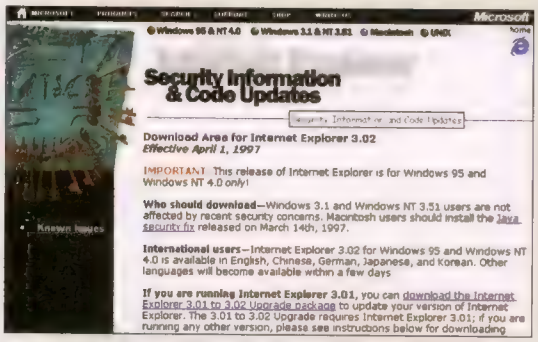
Cookies from sites you visit regularly can be invaluable, saving you from entering passwords, presenting personalised content and enhancing your use of the site. Cookies that are there for the convenience of the site owner are less desirable.

9. Be aware

All of this advice can be boiled down to one precept: be aware. If you understand the various ways in which you're and your connection are vulnerable to hacking or data theft, you can do something to avoid them.

10. And finally...

Don't forget to read the Hot Downloads section of *Internet Magazine* and look out for security alerts that relate to software you use.



Watch out for security updates. Regularly access the Microsoft and Netscape Web pages for patches to your browser

mounted CD-ROMs around with older, insecure versions of software on them, and people are still using old releases on their home computers.

The problem is made worse by the ever-expanding nature of today's browsers. New code – Navigator plug-ins or ActiveX controls or Java applets – can be downloaded and installed automatically, and it's all too simple to just click OK in the security dialog boxes without looking. Recently the German Chaos Computer Club demonstrated an ActiveX control that can steal money from a Quicken-managed bank account.

Data and Scripts

Any sort of binary data can be exchanged over an Internet link, using a wide variety of network protocols. In a corporate environment, firewalls will block unwanted traffic, but dial-up connections are open to abuse. Data may be sent explicitly, perhaps as a macro virus embedded in an email attachment, or a Javascript element in a Web page that crashes your system. It's also possible for a network exchange to occur without the user being aware of it.

The worst security flaw found in Internet Explorer 3.0 (and fixed in 3.02) involved sending a user a Web page that contained a reference to a Windows 95/NT shortcut – a .url or .lnk file. This shortcut could be made to reference a program on the user's computer and execute it, allowing a malicious Web developer to delete files, access confidential data or just cause general havoc.

Data can move both ways over the Internet, and another major concern is privacy. Most personal computers contain private information. One of the criticisms of Netscape's JavaScript language is that it provides a mechanism for a Web browser to access information on a user's disk and transmit it secretly over the Net. The use of cookies, which can be used to track individuals as they surf the Web is also an issue. Programs such as the Cookie Cutter (www.geocities.com/SiliconValley/2784/) can help manage this problem.

The bad news is that there are no clear solutions in sight to many of these problems. For the Net to reach its utopian state of global security and personal privacy, it will need far more than incremental steps such as Netscape's recent decision to discontinue its support for cookies. But in the meantime, protect yourself and turn over the page for the *Internet Magazine* guide to encryption.

Bill Thompson (bill@dial.pipex.com) is a freelance journalist who writes about and Internet technologies. Mike Bracken (mikebr@internet.emap.com) is deputy editor of *Internet Magazine*.

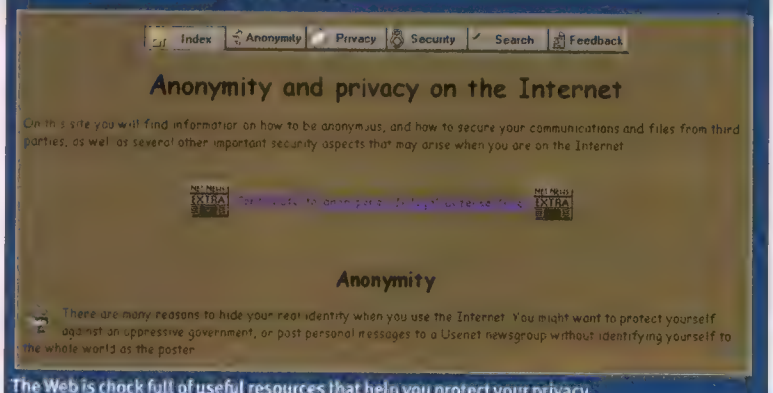
Security sites to visit

Your first port of call should be the WWW Security FAQ at [illegible]. This well-maintained site will give you background on almost every known security issue.

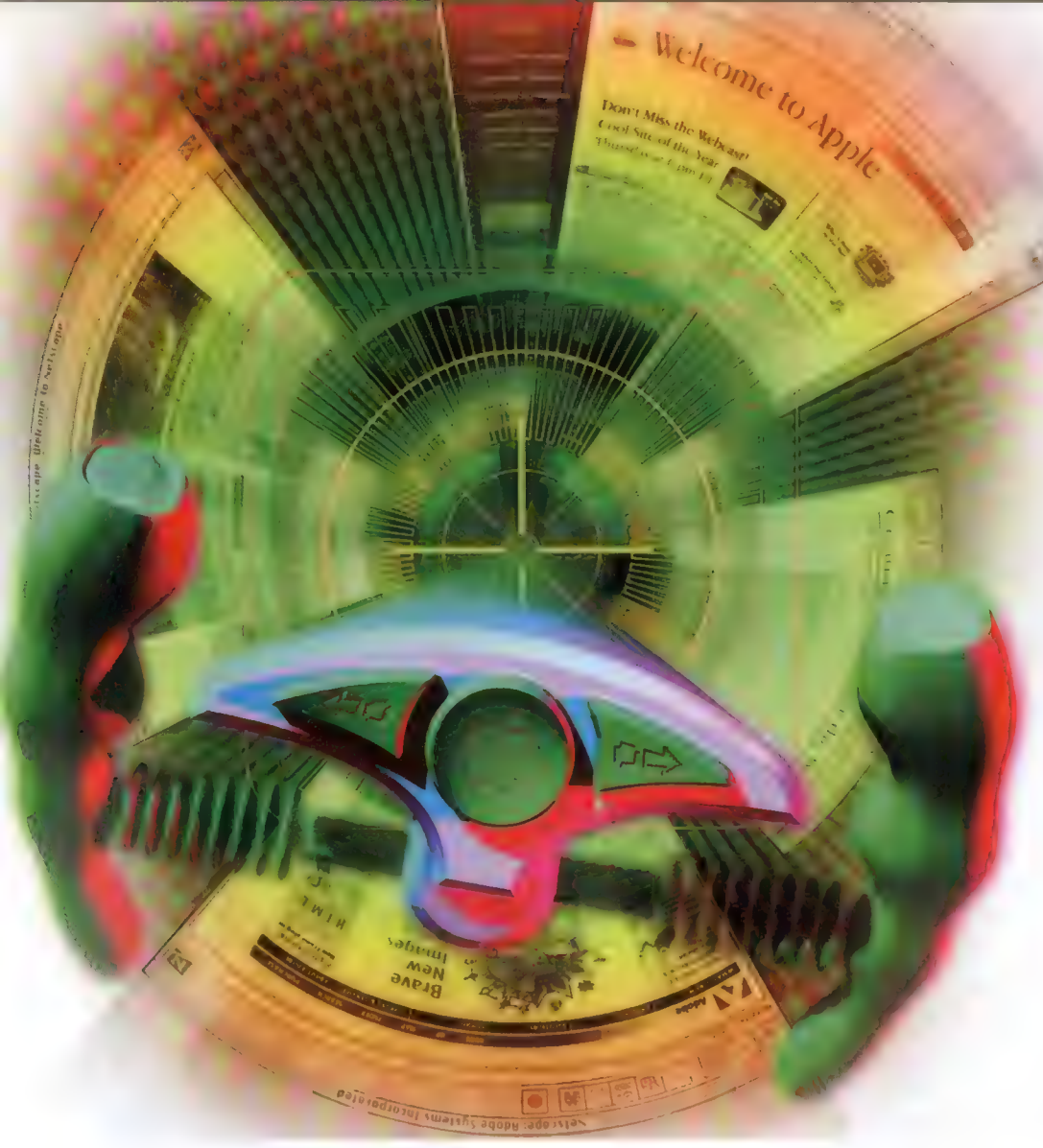
The CERT Co-ordination Center (Computer Emergency Response Team) at [illegible] is oriented towards the needs of systems administrators, but is still valuable. Email cert-advisory-request@cert.org using the subject line SUBSCRIBE <your-email-address>

Another excellent resource is the RISKS Digest, a Forum On Risks To The Public In Computers And Related Systems. It's run by the American Association for Computing Machinery (ACM) Committee on Computers and Public Policy and is available at [illegible] or at the USENET group comp.risks

And finally, an excellent place for information on the wide range of security and privacy issues is maintained by Arnoud 'Galactus' Engelfriet at [illegible] (see below).



The Web is chock full of useful resources that help you protect your privacy



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Privacy, encryption and the threat of Big Brother

And now for the bad news. Even if you take all possible precautions and encrypt, back up and archive your data, there are larger issues at stake that place the whole future of online security in jeopardy.

Ever since the Enigma code breakers led by Alan Turing altered the course of World War II by cracking German coded messages, the development of cryptography and encryption has been led by military and defence organisations. Despite the end of the Cold War, this situation persists. However, the global nature of the Internet depends on freely available products and common standards, and that has been anathema to many countries' views on encryption.

The situation has now reached a stand-off. On the one side are national governments. The US, the UK, France and Germany have been quick to recommend key recovery or key escrow systems. These proposals would initiate a system whereby the government authorises companies to offer strong encryption software that depends on third party keys. These Trusted Third Parties (TTPs) could use their keys to decode data passing between two people. As TTPs are answerable to governments, this would allow governments to decode and read private communications between individuals. Furthermore, with key holders liable be to multi-national companies, it's possible that one company holding a key licensed by the UK could be forced to hand it over to its home government – most likely the US. Theoretically, this could give foreign governments the ability to read private data between two individuals from a foreign country.

Software companies have been quick to fight this key escrow, or third party system. As well as technical considerations such as incompatibility with the industry standard Secure Sockets Layer (SSL) security protocol, the opponents of key escrow have pointed to both business and privacy factors, and instead have backed private key encryption, where only the sender and receiver of information hold a decoder key.

With the US government still restricting the commercial use of 128-bit encryption by US companies outside of the States, it's impossible for businesses to operate on the same secure footing the world over. This is the greatest single handicap to the growth of online banking, commerce and Internet trade.

What's more, civil rights organisations have been quick to oppose key escrow policies as restrictive and possibly illegal. According to the Center for Democracy and Technology (www.cdt.org), "Until the cryptography policy debate is resolved, privacy and security on the Internet remain hostage to outdated, Cold-War-era regulations that threaten privacy and security online."

And yet, a possible solution to the public key/private key debate is emerging. In the US, the encryption policy is to be taken away from the defence department and placed under the aegis of the commerce department. This should make encryption a trade, rather than a terrorist, issue.

In the UK, the DTI has issued an open paper asking for comment from both business and consumers about its proposed key escrow policies. (see http://dtiinfo1.dti.gov.uk/pubs/) With the German and Canadian governments questioning the wisdom of key escrow, and the OECD taking a far more sceptical line than the EU, it looks as though the debate still has a long way to go.

Key Web Resources	
www.pgp.com	Pretty Good Privacy, purveyors of public key software
www.rsa.com	One of the original encryption companies, it has an excellent labs resource
www. eff.org	The Electronic Freedom Foundation
www.epic.org/crypto	The Electronic Privacy Information Centre
http://dtiinfo1.dti.gov.uk/pubs/	The Department of Trade and Industry proposals

An Essential Guide to Encryption

Keys: bits
The scrambling of data by algorithms into encrypted codeis done at several levels; 128-bit encryption is by far the most secure level, but with 40-bit encryption still the standard, anything from email to commercial transactions can be read if a private key product (such as Pretty Good Privacy) isn't used. The US government won't, at present, allow anything over 56-bit key encryption to be exported from the States.

Keys: Public and Private
Private key encryption, or symmetric cryptography, depends on two users sharing a secret code, or key, which encrypts the message for the sender and decrypts it for the receiver. However, anyone who intercepts the key in transit can access to the message.

With public keys both partners have a secret and an open key. The secret key still does the encryption, but the public key solves problems of transmission, storage and delivery of information. Basically, the public key is stored in a directory. If I want to send you an email, I encrypt my message with your public key, and you can only read it by using your private key. This mechanism removes the problem of sending private keys over insecure channels (like phone lines) but places an enormous responsibility on the directory keepers and third party licensees.

Trusted Third Party (TTP)
These are organisations that will be given the power to license strong crypto keys for use by third parties. As they answer to governments, which can demand keys at any time, many in the Internet industry oppose TTPs.

The word from PGP

Phil Zimmerman is the creator of Pretty Good Privacy, or PGP, the most widely used email encryption product. PGP has led a vociferous campaign against the key escrow method of encryption that involves Trusted Third Parties.

A keen supporter of encryption issues around the world, Zimmerman isn't slow to point out the US government's perceived shortcomings in this area. He has submitted evidence to the US Senate and is on record as saying: "The Clinton Administration is driving a wedge in the computer industry by enticing some companies to compromise the public's right to privacy."

Zimmerman and PGP President and CEO, Tom Steding, spoke to *Internet Magazine*.

What are your views on the US and UK governments support of key escrow and trusted third party policies?

Tom Steding: It's a kind of Marxism of cryptography. It's one of the most discredited notions of the twentieth century, which was centralised control. It won't work.

Phil Zimmerman: We should not try to create technology structures that are optimised for surveillance.

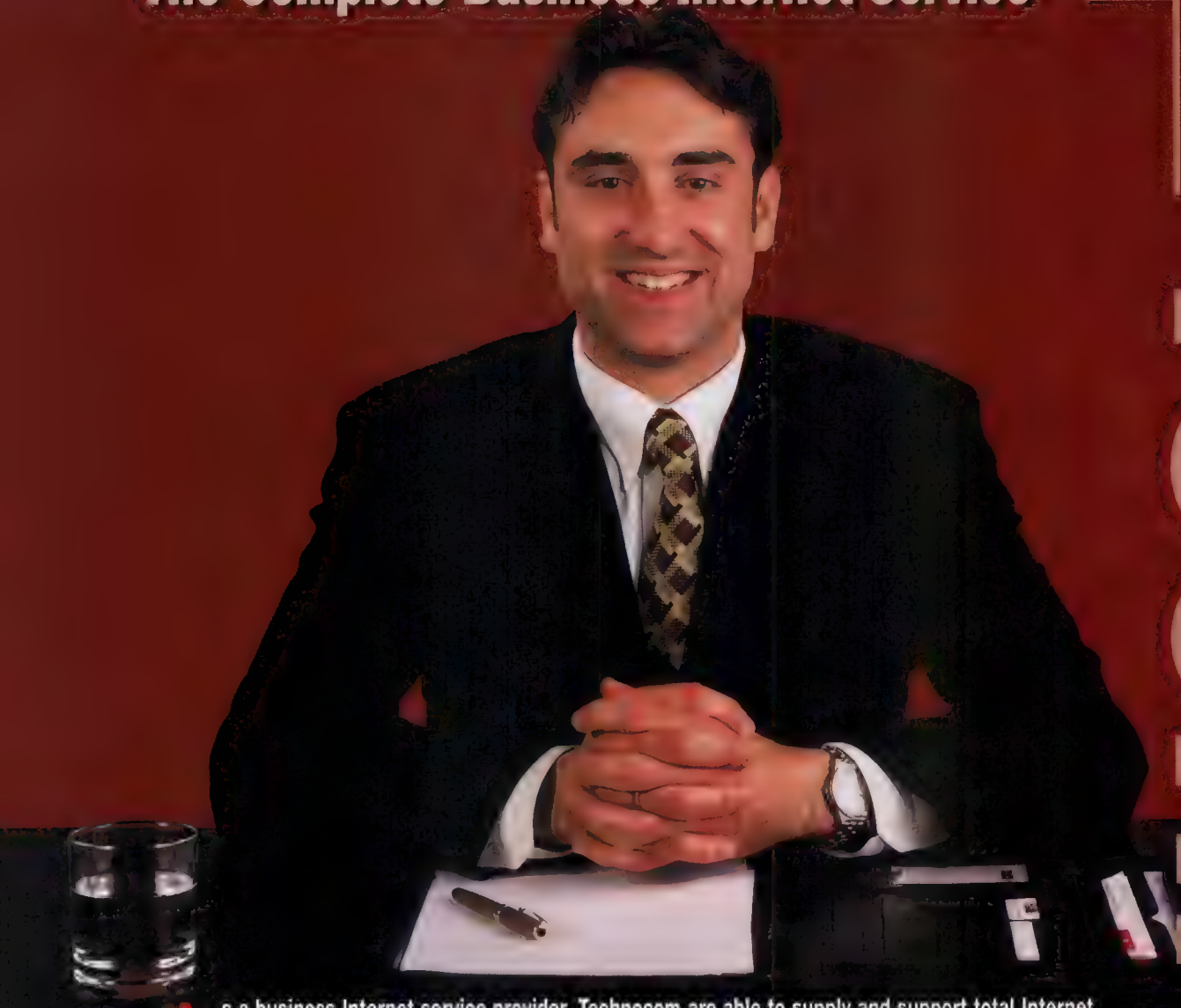
If leading corporations are going to become Trusted Third Parties, won't they be answerable to more than one government?

If an American company is licensed by the UK government, then theoretically the US government can demand that it passes on keys to data sent within the UK, giving the US control of UK intellectual property.

Phil Zimmerman: It's not just intellectual property but all kinds of privacy violations. This is the reason why British citizens should question the policies of their government.

I'm curious about what the Labour Party would do on this. This might be a good opportunity for British citizens to educate the Labour Party on how things ought to be. Government will get briefed by intelligence and law enforcement communities, and they'll assume a position from the only people that are briefing them.

The Complete Business Internet Service



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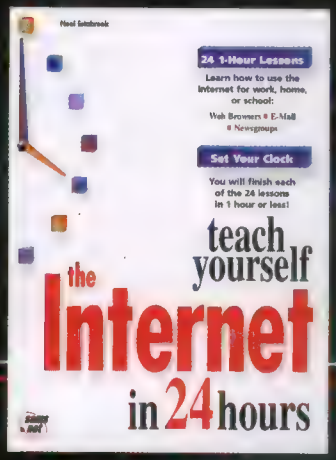

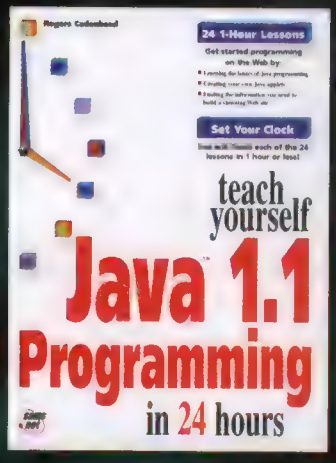

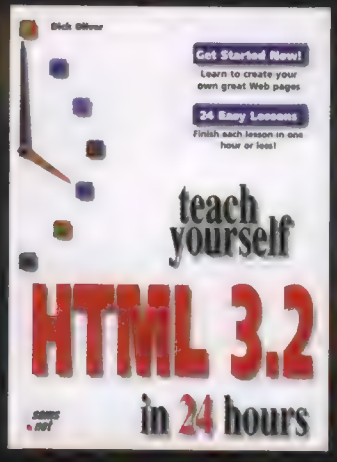

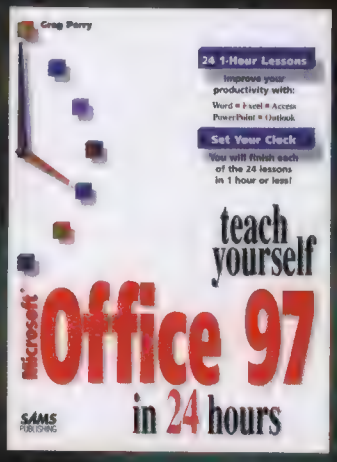

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Making the Net work

Despite having massive network resources, it has taken BT three years to come up with a comprehensive Internet portfolio. Mike Bracken and Johnny Webster talk to the men that matter.

BT is proud of its history. Innovations 97, the showcase for future technology that BT hosts at its Suffolk labs every three years, shows the awesome scale of its involvement with communications and information. BT laid the first submarine telephone cable, and it unveiled the first telephone kiosk.

This year BT is showing a variety of devices set for release over the next few years: mobile phones with built-in Web viewers; real-time video-conferencing over 9,600Kbps cellular connections.

Sir Peter Bonfield, CEO of BT.

Yet for all its history and current innovation – and given the fact that it has a huge installed network to call on – it's only been in the last year that BT's Internet strategy taken shape.

There are many reasons for this, but the most apparent appears to be cannibalism. The Internet is based on a data protocol, and BT makes its money from channelling voice traffic all over the world. The simple explanation for BT's lethargic take-up of the Internet is that it's doing very well, thank you, with its existing price structure for voice traffic. Adopting an Internet-led strategy might have jeopardised the company's profits in pursuit of a growing – but difficult to quantify – Internet market.

This message was crystallised succinctly by BT Chief Executive Peter Bonfield last month. Asked whether BT would be adopting the US model, whereby users can dial into their local IAP without charge, he demurred. He pointed out that the US telcos are struggling to cope with demand for Net access while being able to make enough revenue to cover network expansion. Pushed to clarify his position, he was then asked whether local calls in the UK would be more expensive than in the US. "More expensive than nothing," he replied rhetorically. "I would say so."

So, no free calls for Net users over here, then. However, while the debate over charging for access rumbles on, BT is busily building up its range of Internet options. Much of this is down to Rupert Gavin and his team at BT's Holborn offices. Lured from the directorship of the Dixon's Group, Gavin has assembled BT's Net, multimedia and broadcast division. Encompassing the most exciting Net services and digital broadcast technologies, this division is behind every BT product or service that involves the Net.

"Within two years the development of the Net in the UK should be on a par with the US"

Peter Cochrane

Since the launch of BTnet in November '94, BT has consistently broadened its Internet products. Gavin explains: "Two years ago we made a decision to ramp up our Internet activity. Things have been really happening over the last 12 months." By creating three divisions – research, products and sales – Gavin has created an open market within BT.

All BTs Net companies – BT Internet, WebWorld and BTnet – all have separate business plans and operate in separate markets. This hasn't

always been the case, and Gavin accepts that the various businesses need their own images. "It is comparatively simple now, but it wasn't two years ago. You could have looked right across BT and found little pockets of Internet here and there. We've made a real effort to rationalise ourselves."

Despite BT's concentration on access only, its recent deal with LineOne raised fears that it was moving into the content market. "It's totally within our rights. It only uses the Piper logo." Nevertheless, Gavin admits to being closely involved with the selection of content. He does claim that the deal is not exclusive, and that if a tie-in with other content providers is suitable, he'll take it.

Keeping products separate

What seems to concern Gavin most is his ability to keep his products separate businesses without impinging on other BT businesses. "We have to keep our (voice) network business at arm's length." The common perception has been that BT has been scared of Net telephony as it could detract from its voice network profits. "We are not at all restricted on telephony. We are excited by the opportunities from software that includes voice, and meeting and conferencing applications. What is less exciting is pure voice, or voice over the network. The Internet and voice use is a limited market. The ability to use it for a few users exists, but if it turned into a mass market it would require a huge boost in network infrastructure."

Rupert Gavin watches Tiffany from *EastEnders* point the finger at a BT Touchpoint.

Gavin believes that the impending tie-up with MCI to form Concert will see BT offering Web hosting services globally. Digital TV will be vital, and Gavin says that LineOne was built to be flexible enough to port to this standard. However, he says that the current 'highly polarised debate' over digital TV and the Internet will slow its use.

BT may be a telecoms behemoth, with a massive hold over the UK market. Under Rupert Gavin, however, its Internet offerings are competing in a variety of markets while keeping the telecoms regulators, OFTEL, at arms' length. But for Gavin, the painful process of rationalising BT's Internet products is finished. As he reiterates, it's the growth of the Net market as a whole that is BT's primary objective.

Mike Bracken is Deputy Editor of *Internet Magazine* and can be contact at mikebr@internet.emap.com

The main men

Johnny Webster talks to Peter Cochrane and Steve Sims

Professor Peter Cochrane heads the Advanced Applications & Technologies Group at British Telecom's mighty Martelsham-based research laboratories. Not bad going for a guy who began his career at the Post Office in 1962, at the age of 16, and had to earn his advanced qualifications by studying part-time.

Cochrane is the closest thing that Britain has to a fully-fledged communications visionary – a sort of less-strident Nicholas Negroponte in Union Jack underpants. Even though some of his more politically sensitive colleagues are wary of his more controversial predictions, BT's controlling board treats him as a brilliant maverick. The resources which BT has handed him to use in purely speculative research are pretty staggering in today's hard-nosed business climate. The Advanced Applications & Technologies Group is made up of 650 staff and has a budget of some £40 million a year.

The flamboyant Cochrane clearly enjoys his notoriety within the industry, and makes his pronouncements with a real sense of showmanship. One of his favourite one-liners is his 'equation for life', which 'is L = S+F+T'. Chuckling broadly, he says: "Life equals sex plus food plus technology!"

Internet Magazine (IM): You have said that real experiences will be replaced by virtual ones. Can you explain this?
Peter Cochrane (PC): Look it's got to happen, for two supremely logical reasons. Firstly, the planet's resources are sorely limited, which means that one day we simply won't have the fossil fuels to fly masses of people to their holiday destinations. We cannot keep spending daft amounts of money – currently £15 billion in the UK – to get people to work. It's too wasteful in terms of raw materials and energy, so, whatever the critics of home-working say, I know that the virtual office is just over the horizon.

IM: So what does this mean for BT?
PC: If we're going to communicate experience, BT's network will not only have to be fast, but smart. The networks of the near future will tell you where things are, where people are, and will locate what you want and set about delivering it to you as efficiently as possible.

IM: What kind of applications has your team been developing?
PC: Body-worn electronics such as a silicon gauntlet. It's

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The main men continued...

Peter Cochrane: He has some grand plans.

essentially an office that someone can wear on their arm.

We are working very, very hard to create a series of interfaces that anybody can use instinctively, whether they're a lay person or a computer expert. There must be nothing daunting about them. For this to be successful at least one of these interfaces should be almost human; so it transmits personality and emotion to the user!

For news about Internet applications – and more specifically Internet applications that are likely to see the light of day before 2000 – Cochrane introduces his divisional chief, Steve Sims, who is attempting to combine BT's network provisions with the growing market for Internet commerce.

IM: Growth of Internet commerce is constantly heralded, but with a few exceptions, it's primarily US-based. How can BT deal with this?
Steve Sims (SS): Within two years the development of the Internet in the UK should be on a par with the US. So punters over here should be able to shop to their heart's content. The potential is quite staggering. According to last December's Internet World end-of-year statistical round, online sales in the US are already $500 million, or, looked at another way, 10 per cent of North American Internet users are already buying products online.

IM: What do you think of early forays into online shopping like Barclay's much-trumpeted BarclaySquare?
SS: Although BarclaySquare is coming on, I would have to be honest and say that in its present shape and form it shows how we in Britain are still several years behind America when it comes to online facilities. To show you what I mean, you need to compare the 50 or so shops in BarclaySquare some of the large US sites which have a staggering 19,000 stalls.

IM: But how else is BT developing the Internet in the UK?
SS: One of the jewels in our crown is our online services facility for schools called Campus World which specialises in providing educational-based content in a safe environment so children cannot get access to more dodgy material.

Then we have some 3,000 companies marketing their wares on Campus Connect. We're experimenting with a facility within Campus Connect where GCSE and A level results will be delivered in cryptic form. On the day the results are due, the keys will be given out to allow schools to de-crypt the results, to ease the massive distribution problems involved with shipping out tens of thousands of exam results all in one go. Some 2,300 schools have already signed up, and we are averaging 75,000 hits a day from teachers and pupils.

IM: If you're going to develop online commerce, then you'll need to tackle the problem of cryptography standards?
SS: Quite a large part of our research program here is looking at the security technologies needed for electronic commerce and the electronic payment method. We have a dedicated department called the Security Electronic Commerce Research Team, and four or five of them do nothing but work on cryptography. It has come a long way since the last war. At that time, protecting your own codes while cracking the enemy's was the vital thing. The technology that was used was classical cryptography, where you have a secret key to encrypt your data, and you have to give a copy of that same key to the person who receives it for them to decrypt it.

This time-honoured method is not really practical for commerce on the Internet where you might want to do business with thousands of people. Once you give your secret key to that many people it defeats the object because it's not a secret anymore; not to mention being totally impractical because of the volume of key-swopping that would have to go on.

The way that BT, like other companies, have circumnavigated this is to have a new kind of cryptography called public key cryptography. Therefore, if a company, or individual, wants to do business on the Internet, they have a private key and also a duplicate of that called a public key which is made freely available to everybody. The upshot of this is that anyone in the world can encrypt their data using the company or individual's public key, but only that company or individual alone can read it using their private key.

IM: What about managing public keys by trusted third parties? Surely this could let governments snoop on personal, encrypted data?
SS: We have made it possible for people to use this technology the other way round. In other words if I sign a document with my private key then someone else receiving it can read it with my public key, but they can be sure that I was the only person who could have sent it. So, you can use it for the equivalent of a digital signature, because that is one thing that has been missing in electronic commerce until now: the ability to sign, authenticate and date stamp documents. This will play a vital role in the safe exchange of monies to pay for goods and services between companies; not to mention the exchange of legal documents, such as contracts. A whole new vista is opening up where companies are buying and selling goods and services from each other, and we have devised the means whereby they can exchange legal documents and contracts safely.

There are a number of third parties (private organisations) starting up that certify and guarantee the public/private key system. We have been testing Verisign's capability to verify that transactions are happening safely, and so far they've being doing a good job at weeding out the dodgy from the secure. Verisign could become the industry standard verification service.

IM: What is BT's Electronic Copyright Protection System?
SS: Essentially it means putting in some hidden information that is not immediately obvious to the fraudster or infringer. The watermark is a good analogy.

What we have done is to come up with a system whereby it's possible to add a secret electronic digital image that is very hard to detect unless it's analysed and exposed with the right kind of program.

Johnny Webster is a freelance journalist.

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www.btwebworld.com

LineOne
BT has a 50 per cent stake in this Murdoch-backed online content venture.
www.lineone.net

Concert Internet Plus
High-bandwidth global network provision for multinationals.
www.concert.com

BT Intranet Services
A one-stop-shop for intranet products and services (forthcoming).

BT Network for Lotus Notes
A new network just for Lotus users.
www.notes.bt.com

Wireplay
The network for online gamers.
www.wireplay.com

BT HealthNet WebWorld
Information and access for health professionals.
www.bthealthnet.com

BT Campus
Online and education and training.
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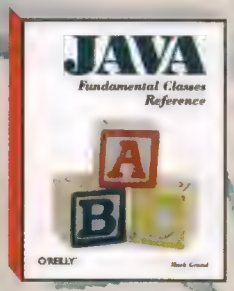
We have a whole range of new books slated for release this spring. Below we've shown just a few; contact your local bookstore about these and other new titles, including our much-requested *Java in a Nutshell, 2nd Edition.*



Java Fundamental Classes Reference

By Mark Grand
1st Edition May 1997 (est.)
880 pages (est.), ISBN 1-56592-241-7
£22.95

Java AWT Reference

By John Zukowski
1st Edition April 1997
1,074 pages, ISBN 1-56592-240-9
£29.50

Java Language Reference

By Mark Grand
1st Edition January 1997
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£24.50

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tried&tested

Internet Magazine is committed to bringing you the best and most authoritative reviews in the Internet industry. Every month we'll test and rate the most important new Internet products and Web sites. If you're making a buying decision, looking for a Web design company or doing a bit of pre-purchase research, the following pages are crucial.

In Tried & Tested you'll find the latest news on just-announced products, hard-hitting reviews of key product releases, comprehensive Labs tests and details of all the freeware and shareware you should be downloading this month.

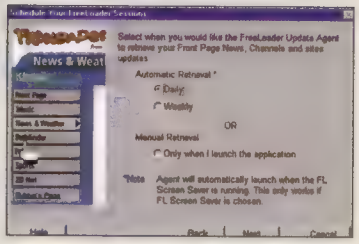
To find out how this month's most important Web sites were put together, turn to our Sites Surveyor section. Professional Web site builders spill the beans on how they plan, design and maintain their masterpieces.

Star Ratings

★★★★★ Must buy
★★★★☆ Should buy
★★★☆☆ Could buy
★★☆☆☆ Poor buy
★☆☆☆☆ Don't buy

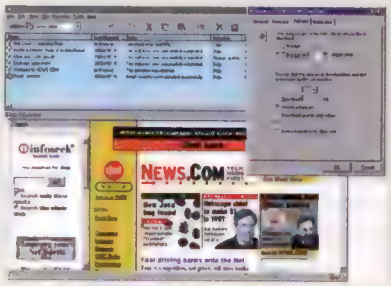
June 97

Our experts evaluate key new releases



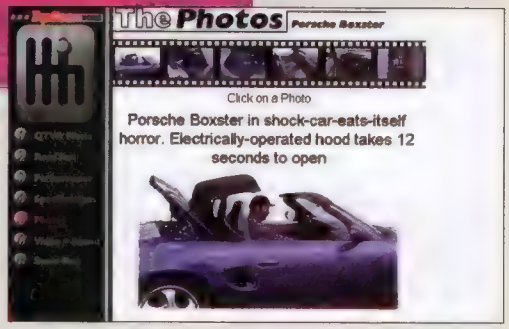
Tempted by tailored information sent direct to your desktop? Well, the *Internet Magazine* Labs team has ventured into the wonderful world of push to find the best client for you. Pages 62 to 67

Torture-tested this month is the preview version of Internet Explorer 4.0 – find out how it could change your desktop. US Robotics' X2 technology is put to the test, we find out what speed gains you can practically expect. You'll also find detailed reviews of Web creation package NetObjects 2.0 and anti-porn screening software ImageCensor 1.0. Pages 69 to 80



Get your modem ready for this month's Hot Downloads which include a couple of excellent email packages and a program which checks out just who is online. Page 85

June's Site of the Month award is safe in the hands of Durex. Page 92 Meanwhile, our in-house site gurus take a tour of this month's most exciting sites. We take a tipple at the Beefeater Gin pages, revel in the luxury of the Royal Opera House and slip into Top Gear's V8 site. Pages 95 to 105



Find out how to use Microsoft's ActiveX to good effect on your Web site as it takes centre stage as Web Technology of the Month. Page 103

The best push technology for you

Tempted by tailored information sent direct to your desktop? Well, the Internet Magazine Labs team has ventured into the wonderful world of push to find the best client for you.

There's a whole lot of hype about push, but the concept is simple. It's about filtering Web content and delivering it to the desktop in a sensible easy to manage format.

Fans of the technology claim it brings the Internet content you want direct to your desktop while its opponents reckon it restricts the Net to TV-style channels.

Push – behind the hype

In a quest for the truth, the *Internet Magazine* Labs team downloaded and installed six of the top push clients and waited for the inevitable deluge of information to hit their desktops.

The best news for users about push clients and the information they deliver is that, in the main, they're free. Wander along to the Web sites and you'll find the client software is a free download. So where does the money come from to pay for the service? From advertisers, largely, who pay to have their messages pushed down to you.

How we tested

The first thing you notice about the push services is the quality of the content and so this was one of our prime concerns – especially since much of the content has a distinct US bias. We also looked at how easy the products were to set up, and how they deliver their updates (screensaver, news ticker and so on).

We were also looking for the easy customisation of the information downloaded. For example, you might be interested in reading only those articles from *The Economist* that cover UK Insurance companies, so does your push client allow you to make specific choices about the level of detail you want to get?

It's also important that the clients support a good range of scheduling features. If you're accessing the service from home you'll want the client to download updates when phone calls are at their cheapest.

Of course, bandwidth is also key. There's no point having top quality information delivered to your desktop if the push client is so resource intensive that it brings your machine to a grinding halt every time it tries to deliver the information. Thankfully, most of the clients allow you to specify what kind of Net connection you have – modem or leased line. This should allow the software to manage the available bandwidth effectively.

We can reliably inform you that, once you've installed six push clients on your machine you'll know the real meaning of wading through treacle. Stories of PointCast being banned on company networks because it's generating too much traffic are a real worry in the business arena. It's here that areas like a cacheing proxy server will ease the strain on your network.

Oh, and one other little essential we were looking for is an uninstall program to get rid of the software easily should you decide you no longer want the service.

Push clients – how they compare

Product name	BackWeb 2.0	Castanet Tuner	Freeloader 2.5
Supplier	BackWeb	Marimba	Freeloader
Web site	www.backweb.com	www.marimba.com	www.freeloader.com
Download size	3 to 4Mb	2.5 to 3.0Mb	2.9Mb
Platforms supported	Windows 95/NT/ Mac version in beta	Windows 95/NT 4.0/Solaris 2.x Mac OS (Power PC)	Windows 3.x/95
Browsers supported	Navigator 2.0 +/IE2 +	Communicator	Navigator 2.0 +/IE3.0 +
Total number of channels	40	20+	600+
No of channels you can subscribe to at any one time	40	20+	600+
Formats information is presented in	Screensaver/wallpaper/InfoPaks	Java applets	Screensaver/newspaper front page
Audio support	●	●	●
Video support	●	●	●
Schedule customisation	●	●	●
Bandwidth management	●	●	●
Cacheing proxy server	●	●	●
Uninstall	●	○	○
Star Ratings	★★★	★★★	★★★★

The push battle between Netscape and Microsoft

The really big fight in the push arena isn't between the myriad of push clients currently on the market. No, the big fight is between Microsoft and Netscape. Both want to control the way information is delivered to your desktop.

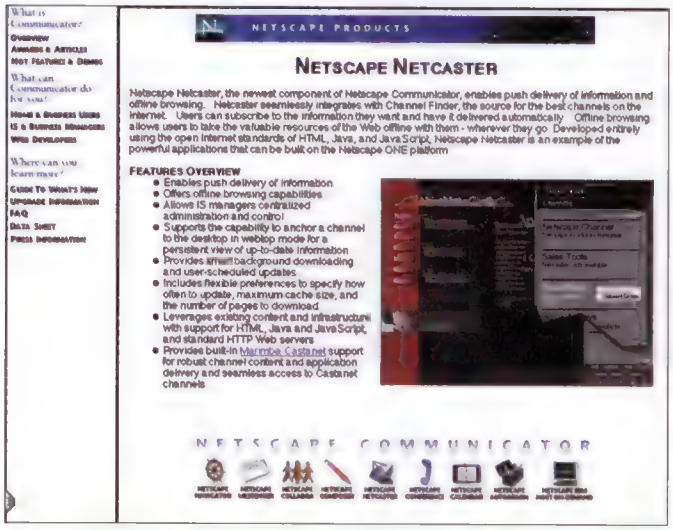
You'll find details of both company's proposals at **www.microsoft.com** and **www.netscape.com** but here's a brief outline.

Netscape is going along a largely open route, recommending that channel information is delivered using variations on those Web favourites good old HTML and Java.

As you might expect, Microsoft is wending its own route, proposing its own Channel Definition Format (CDF). CDF will control which parts of a Web site are going to be delivered to what channels and how those channels are going to be updated.

The existing push client software vendors are starting to line up behind the big guys. PointCast, Lanacom and BackWeb are all throwing their lot in with Microsoft, while Marimba and Intermind have pitched in with Netscape.

These alliances make sense, as the brutal reality is that either Netscape or Microsoft will control the way information is distributed to the desktop within the next two years.

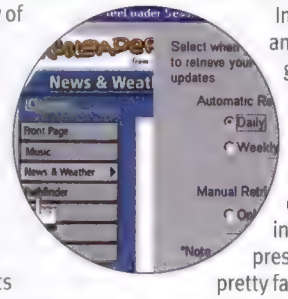


Netcaster is Netscape's push technology and is a rival to Microsoft's CDF

Push clients: the winners and those that fall by the wayside

The push clients on test fell into two distinct areas – those that you'd want to run to get hold of serious business information and those that are more at home in a consumer family setting. The information displayed by the clients varies widely – from horoscopes, to singles ads to detailed stock market data.

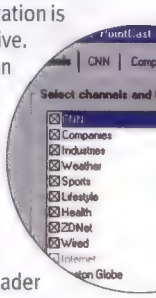
Within the business market, PointCast has long been the most influential product. PointCast's experience in the market still shows in the quality of the information it delivers and in the extensive customisation options it offers.



Nevertheless, products like Headliner from Lanacom are giving PointCast a run for its money. Headliner has the added benefit of allowing you to set up your own choice of Web sites as channels and also has a decent selection of UK-specific content. But there has to be a drawback and it's this – the professional version of Headliner which gives you these extended features will cost you or your business, it will sell for $69.95.

At the moment though, PointCast still has the edge and it wins our award for top business-focussed push client.

Moving onto the more consumer-based services. Both Freeloader and BackWeb are interesting. BackWeb's form of presentation is fun but it is intrusive.



Globules of information pop up on your desktop when you least expect them. Some folks will like this quirkier approach, while others will find it irritating.

In the final analysis, Freeloader gets our vote as top consumer push service. It's commendably easy to set up and, because it downloads the information before it's presented to you, it's pretty fast to use.

The most unusual product in this test is Castanet from Marimba. If you're looking for a quick and easy way to distribute applications then you'll find this Java-based push client especially interesting. On the other hand, if you're looking for the latest news, Castanet is not for you.

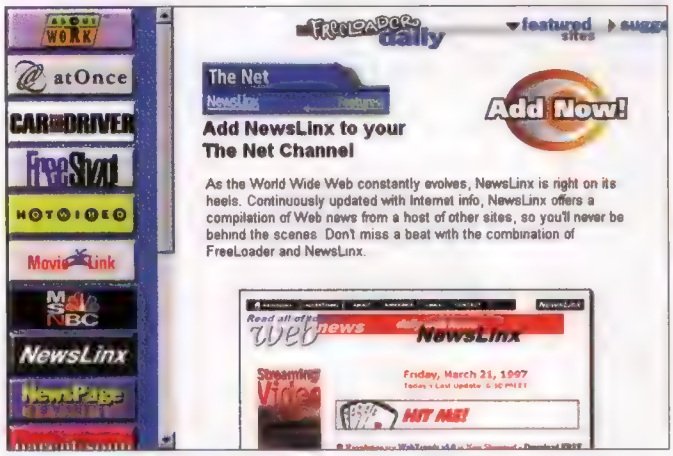
Headliner Professional	Intermind 1.51	PointCast 1.6
Lanacom	Intermind Corporation	PointCast
www.headliner.com	www.intermind.com	www.pointcast.com
2.8Mb	1.6 to 1.9Mb	4.6Mb
Windows 95/NT 4.0	Windows 3.x/95/NT Mac and Unix soon	Windows 3.x/95/Mac
Navigator 2+/IE3+	Navigator 2+/IE 3+	
600+	200+	26
40	40	10
Screensaver/ticker	Only presents information in a frames-based browser	Screensaver/ticker/ proprietary interface
○	●	○
○	○	●
○	●	●
●	●	●
●	●	●
○	●	○
★★★★	★★★	★★★★

Where to get more on push technology

If you're after more information on both Netscape's and Microsoft's plans for push check out the following links:

- **www.microsoft.com/corpinfo/press/1997/mar97/cdfrpr.htm**
- **www.microsoft.com/ie/ie40/content/cdfben.htm**
- **www.netscape.com/comprod/products/communicator/netcaster_frameset.html**
- **www.lanacom.com/cdf**
- **www.freeloader.com/push.htm**
- **www.channelsite.com/**

PUSH CLIENTS



Simple set-up and local storage makes Freeloader quick and easy

Freeloader 2.5

This client is very simple to set up and the information is stored locally

If you like your information on the lighter side then Freeloader is well worth investigating. The 600 information channels run the gamut of content from leisure through to business, no doubt helped by the fact that Freeloader is a subsidiary of the online news service, Individual.

Lots of the content providers appear again and again in the various push channels – Microsoft's link up with NBC news, the Pathfinder US news and media service and the computer magazine publishers ZD Net are all popular choices that you'll also find in Freeloader.

The program has the look and feel of a consumer service, it doesn't have the corporate appeal of a product such as PointCast. Nevertheless, there's content aplenty. The bad news is there's not a whole lot in the way of UK-specific content, so don't expect to browse through the sports section and find many references to Liverpool and Man United, or even Chesterfield. But at least you can create your own customised channels to add to the ready-made ones.

FreeLoader's installation process is commendably simple. There's no messy downloading and then running a set-up program – as you download, the program is installed on your local disk.

Freeloader information comes at you in a variety of formats. When you set up the program you're asked to choose your information preferences and these are presented in a newspaper front page-style format. Update information is sent down to a Freeloader screensaver. What's more there's not too much in the way of advertising sent to you, despite the fact that the service is being financed by advertisers.

The program mixes offline browser features with push. It works by downloading Web sites to your local disk – you specify the depth of links you want to download. Freeloader, quite rightly, advises that a depth higher than one 'may result in very large downloads'. You schedule the updates, they can be hourly, daily, monthly or just the once. The Freeloader update agent then sits happily in the background checking for updates. By default, Freeloader refreshes information in the middle of the night but you can schedule downloads for anytime – just make sure it's cheap rate.

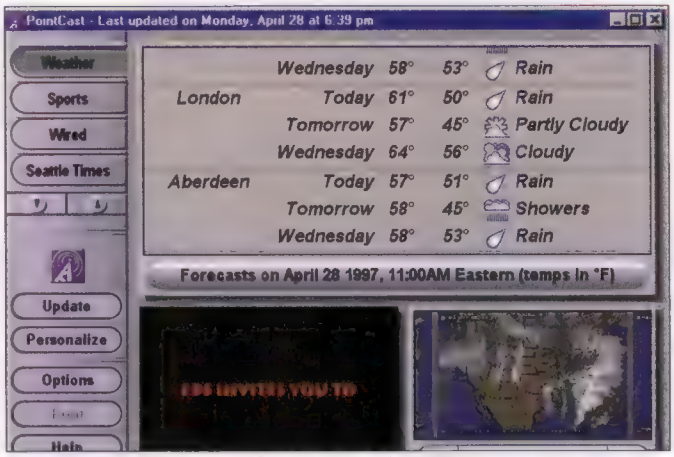
Verdict

We liked Freeloader a lot, it's a doddle to navigate and set up. And, once the information is downloaded, it's fast to access because it's stored locally. We also liked the fact that you can create your own customised channels.

★★★★

Freeloader 2.5
Price *Free*
Pros *Wide selection of content, customisable channels and flexible scheduling.*
Cons *US-biased content.*
Platforms *Windows 3.x, 95*
Download size *2.9Mb*
Contact *Freeloader*
Web www.freeloader.com

PUSH CLIENTS



This is a serious interface for serious business information

PointCast 1.6

For those users after solid business information this is hard to beat

PointCast is the big daddy of push technology. It's been in the business since February 1996 and that's a lifetime in the world of the Internet. The service now has more than a million subscribers and a rather handy deal with Microsoft whereby it will be incorporated into Internet Explorer 4.0.

The main PointCast screen presents information in four windows. The largest window displays your chosen information, a smaller window displays a list of the relevant news stories, so you can easily move between the articles. Down the left-hand side you get the menu bar with its list of channels and personalisation and update options. A fourth floating window brings ads to your desktop. There's also a screensaver option which hits you with the headlines while your PC has nothing better to do. As we were going to press there were 26 channels available and you can subscribe to 10 at any one time.

The customisation options are impressive, within the pre-set channels. For example, under the Companies option you can track the specific performance of 25 businesses or if you choose the Weather menu you can pick which country's weather you want to track (and yes, London is included in the list, along with Aberdeen).

Generally, the info is US-centric though. As an example you can track local papers, but they're all in the US – although it's always worth following what's happening in *The Seattle Times* if you want to find out what Microsoft is up to. The customisation options for the newspapers are impressive though, you can track just the sports stories or cut out anything that involves technology, for example.

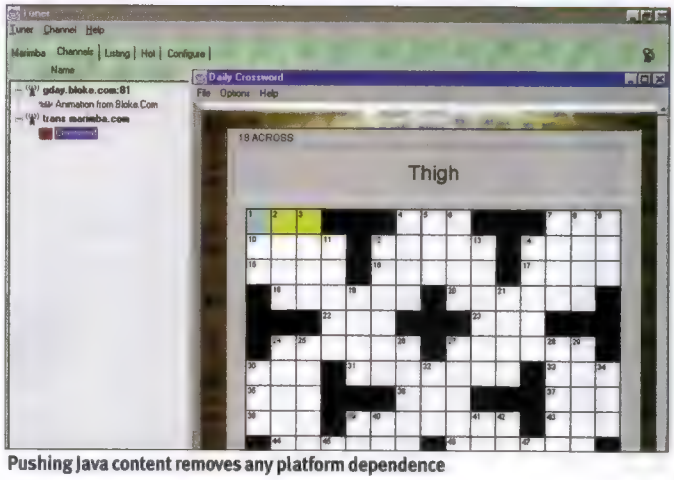
For reliable business information you can't really fault PointCast, the two latest additions to the service are the Wall Street Journal Interactive Edition and the Fortune Business Report. It's true you can probably get most of the same information direct from the Web sites of PointCast's information providers, but it's so useful to have it all presented in a manageable format. The quality of the content is matched by the intuitive interface and the decent selection of scheduling options.

Verdict

For serious business information we'd recommend PointCast. On our wish list would be more UK-specific information and a less resource-hungry client. The next generation of PointCast will add a facility which allows you to link to a Web site you want to track and add it as a channel so that all the updates are automatically piped down to you.

★★★★

PointCast
Price *Free*
Pros *Good quality business information, good customisation options within the channels.*
Cons *Could do with more UK info and being leaner.*
Platforms supported *Windows 3.x, 95; Macintosh*
Download size *4.6Mb*
Contact *PointCast*
Web www.pointcast.com



Pushing Java content removes any platform dependence

Castanet

This client is easy on the resources as it's based on Java, but the content is quirky.

Castanet comes from a company called Marimba, formed in 1996 by four members of Sun's original Java development team. The Java experience permeates throughout Castanet and makes it a very different push proposition. However, the good news is because it's based on Java, Castanet is less of a resource hog than many of the other products on test.

The links between Marimba and Sun are still strong. The two companies have announced that Marimba's push technology will be built into Sun's JavaStations. Because a Castanet channel can be anything a programmer can create in Java, this means Java applets can be delivered to the JavaStations.

To its credit Marimba also has deals with other major Net players. There's a non-exclusive deal with Netscape to build the Castanet tuner into Netscape's Constellation software. It's also been recently announced that Castanet will support Macromedia's Shockwave.

What Castanet is really good at is distributing and updating software across an intranet or over the Internet. Corporates can develop their own applications or newsfeeds and then distribute it to their happy workers. The really cool thing is the fact that Castanet can automatically distribute and update software, deleting any old versions on the way. The update schedule is saved in the channel by the developer, although you can change the schedule yourself.

Setting up the client is not as painless as either PointCast or Freeloader and the channel structure is not intuitive. This is probably down to the fact that Marimba is not really into setting up its own channels, most will be built and hosted by third parties.

To find a channel you log onto a Castanet transmitter and from there you can access a channel by double-clicking on it. Select a channel and the Java applet comes down the line at you and is installed onto your hard disk, this makes the process slow. I stumbled across the Java daily crossword, bloke.com and a rather bizarre dancing baby.

Verdict

At the moment Marimba seems more interested in showing off the technology than in providing useful content. True enough, there is content out there from the likes of Excite! and HotWired but you have to dig around to find it.

If you're looking for a technology which will distribute software painlessly over a network than Castanet is a product worth considering. On the other hand, if you're looking for the latest news delivered to your desktop, this isn't the one for you.

★★★☆☆

Castanet Tuner
Price *Free*
Pros *Top technology for keeping software constantly up-to-date.*
Cons *Useful information is tricky to find.*
Platforms supported *Windows 95, NT 4.0; Solaris; Macintosh*
Download size *2.5Mb*
Contact *Marimba*
Web www.marimba.com

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Email forwarding (multiple user account [M])	Monthly £15
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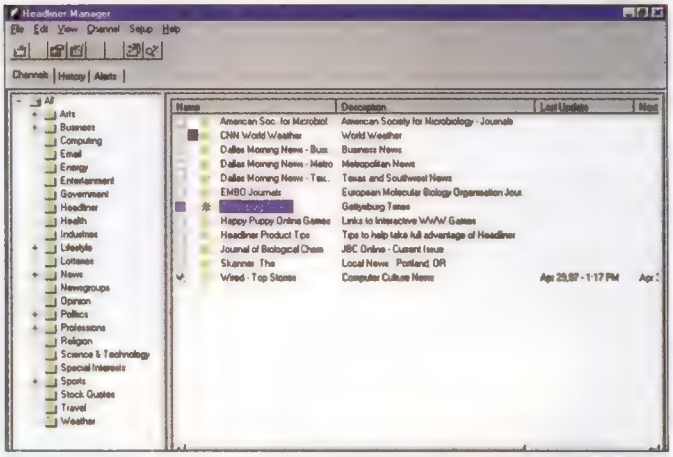
NETBENEFIT

PUSH CLIENTS



For a change, there are some useful UK-specific content channels on Headliner

Headliner

Unlike many other push services this one has some useful UK-based content

Developed by the guy behind WinFax, this is a Canadian product, but don't hold that against it. What is unusual about the company is the fact that they're setting up offices in the UK with the aim of providing local content. Commendably, there's a wider selection of non-US channels supported within Headliner than we found with the other products in this test. UK-specific channels include BBC News, *The Times*, *The Economist*, House of Commons news service and *The Blackpool Citizen*.

The Professional version of the product is a recent upgrade and it allows you to choose Web sites you want to download from, even if they don't currently exist as channels under Headliner. Also new in this version is the ability to have Headliner send a message to a pager to notify you of specific updates. For less urgent notification, it will send you an email update notification.

You can have your headlines presented in a screensaver, as a news ticker or you can have headline information displayed across the title bar of your applications. Headlines come down, along with summaries of stories. If you want more detail click on the story and it'll pull up the appropriate Web page. Tabbed dialog boxes allow you to choose what type of headlines are visible.

Currently, there are more than 600 channels running on Headliner and they're categorised into sensible areas like news, lifestyle and so on. As you can set up any Web site to pull down information to Headliner so you can also set up your own categories. If you add a Web site a content agent is created for that site, which pulls out the key stories and titles. The product can also pull out headlines from newsgroup channels. What's more you can filter the information coming at you from sites and ask to pull down only those stories that include specific words.

Headliner is lean on resources. We had the headline ticker running across the top of our screen and our rather puny machine handled it quite nicely. When it goes online to download info it pulls down a single HTML page without images.

Verdict

Headliner is an impressive bit of software but there is a catch. Headliner Professional handles fancy stuff like alerts via a pager and creating your own channels. The bad news is Lanacom is planning to charge for this – $69.95! There is a free beta test version on the Web site but only existing Headliner users are able to take part in the program. The free version of Headliner can't do either of these tasks.

★★★★☆

Headliner
Price *Basic free; Professional version will be $69.95*
Pros *Selecting Web sites you want content from, flexible filtering.*
Cons *To get the full set of features you'll have to pay.*
Platforms supported *Windows 95, NT*
Download size *2.8Mb*
Contact *Lanacom*
Web www.headliner.com

PUSH CLIENTS

The interface is fun at first, but you could quickly tire of the quirky presentation

BackWeb 2.0

This client's fun-looking interface hides some useful business information

BackWeb is the quirkiest of the push products in our test. Information comes at you in a wide variety of formats – which makes it quite fun, you never quite know what's going to pop-up on your screen. This has its downside though, it doesn't have the serious business credibility that a product such as PointCast commands. However, BackWeb takes its business seriously and has rewritten its client software so it will work with Microsoft's Internet Explorer 4.0, when it's released.

Information can be presented in a screensaver as wallpaper or even as audio messages. InfoFlashes are the cutest introduction, they pop-up over your application and tell you that interesting data awaits you. If you then go on to double-click on that flash it expands into what BackWeb calls an 'InfoPak'. InfoPaks can contain a variety of items including text, graphics, VR movies. The BackWeb client software can also support Netscape Navigator plug-ins and future releases will support Java applets.

BackWeb monitors activity on your computer and downloads its content when you're not doing anything else much with your Internet connection. You can control when the InfoPaks burst into action by determining how long the mouse and keyboard should be left idle before the InfoPak plays. However, the agent that sits in the background monitoring your activity is a bit of a resource hog. When it's working it's pretty tricky to do anything else with your machine.

BackWeb supported 40 channels at the time of going to press. The content is similar to the kind of stuff you get on Freeloader. Again there's more emphasis put on the home user's information needs than business – the arts, horoscopes, romance, music, sport and online shopping are all well catered for. Nevertheless, the recently added channels list offered more in the way of business information and includes updates from software companies such as the anti-virus merchants McAfee and stock market quotes from PC Quote.

Verdict

Despite my sneaky liking for BackWeb's interesting presentation I fear that it would grow irritating after too long. If we were looking for consumer-based channel information I'd stick with the likes of Freeloader. However, we do have to praise BackWeb for providing comprehensive decent uninstall information – it was very much appreciated.

★★★☆☆

BackWeb 2.0
Price *Free*
Pros *Good selection of channels, fun presentation.*
Cons *The InfoFlash presentation tool could be a over-the-top for business customers.*
Platforms supported *Windows 3.x, 95, NT; Macintosh*
Download size *3 to 4Mb*
Contact *BackWeb*
Web www.backweb.com

Setting up and adding channels is a doddle with Intermind

Intermind 1.51

An excellent interface with small file sizes, but the information is again biased to the US

The rather slow initial download wasn't the best introduction to this service, but once we got over that everything became quick and easy. Under Windows 95, the installation was a matter of three mouse clicks, including which browser (frames-friendly browsers only) you're going to use Intermind with.

Selecting a site displays the channel's messages and headlines – these link to the actual site, which is displayed in a separate frame in your browser window. Sadly, despite the user-friendly interface and ease of navigation, the content is once again very US-centric.

Intermind has obviously paid heed to the worries that push services can cause the user bandwidth problems and so there's a choice of connection type which tailors the service accordingly.

Once installed, the Channel Bar offers a well organised global directory of the major sites. Channel files are 6Kb to 10Kb – this compares favourably to the 6-10Mb pushed by other files. The service offers more than 200 channels, with 12 highlighted including the omnipresent HotWired and Excite. Intermind claims it's also adding new channels at a rate of about 10 a week.

Intermind also make the claim that you should be able to publish your own Web channel in minutes using the Intermind publishing wizard. This, coupled with the small file sizes, would make publishing information across a corporate network using the technology attractive. In addition, you don't need servers to publish information.

Also for those looking to publish information using Intermind, the company will provide you with statistics including demographics and usage information for an additional cost. However, no specific user information such as email addresses passes through to Web masters.

For those using the service, new information is subtlely posted as a notice under the channel in your selection frame. You can automate the refresh rate for your channels, set your own schedules or make one-off calls for new information whenever you want. For the automated updates Intermind uses an object known as Hyperconnector. This is an object containing links, text and instructions.

Verdict

For those thinking of using the technology for their own purposes, Intermind is a good bet. For the user, the service is easy to use and it isn't bandwidth-hungry, but you won't find much UK news.

★★★☆☆

Intermind Communicator 1.51
Price *Free*
Pros *Easy installation and deinstallation; good interface.*
Cons *Limited selection of content.*
Platforms supported *Windows 3.x, 95, NT; (Macintosh and Unix versions planned)*
Download size *1.6Mb*
Contact *Intermind*
Web www.intermind.com

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Email forwarding (multiple user account [M])	Monthly £15
Web server	Set up £50
	Monthly £20
Email [M] + web server	Set up £50
	Monthly £25

Minimum 12 months subscription. Prices exclude VAT
To maintain ownership of an Internet name £30pa is payable to the central registry

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*OfficeTalk ships with a free 60 day evaluation period.

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Internet Explorer 4.0 preview

IE4 holds out the promise of easy access to information whether it's on the Net or on the desktop

The Internet Explorer 4.0 (IE4) browser interface will become the latest iteration of the Windows interface in the next major releases of Windows 95 and Windows NT, expected sometime next year.

However, Memphis, as the next release of Windows 95 is code-named, and Windows NT 5.0 are running late. So Microsoft, in its infinite wisdom, has split off this Platform Preview of the interface from the plumbing and made it publicly available as a really early pre-beta release.

The IE4 Platform Preview is a first look at the window dressing — Memphis proper, the upgrade, has been separately distributed in a preview version to Windows developers. Not all the Explorer 4 features are fully working in this platform preview and the feature set could change before it ships, but the IE4 preview is a clear indicator of what browser/interface we can expect.

Browser...

The Internet Explorer 4.0 Platform Preview shows both the next release of Microsoft's Web browser and gives a first glimpse of the next Windows desktop shell. With IE4 enabled as the Windows desktop shell, the browser interface becomes the common access point for local drives and files, for network resources and, of course, for the Internet.

The front-end also gives you a consistent navigation interface and, in applications with common toolbars and single-click selections, it replaces the double mouse-click.

As a browser, IE4 is stuffed to the gunwhales with new features — multimedia conferencing, multimedia broadcasting, Webcasting Push technology, dynamic HTML and an enhanced email client. However, building IE4 into the Windows shell does carry a performance penalty. You'll need a fast PC which is well-endowed with memory. The benefit of this integration is the ability to personalise the desktop in ways far beyond that of Windows 95/NT 4.0.

...And shell

As a Windows shell the IE4 Platform Preview is designed to be flexible so that end-users can tailor it to their liking and companies can create customised, branded corporate desktops for their intranets. The Web interface gives you one-click access to local and Internet resources, which are added to the Start menu.

The Active Desktop allows you to customise the desktop as much as you like. It activates the desktop with a new HTML layer for frames which hold HTML code fragments called Desktop Components. These are single-click references that can call up programs, the Web and broadcast Webcasting channels.

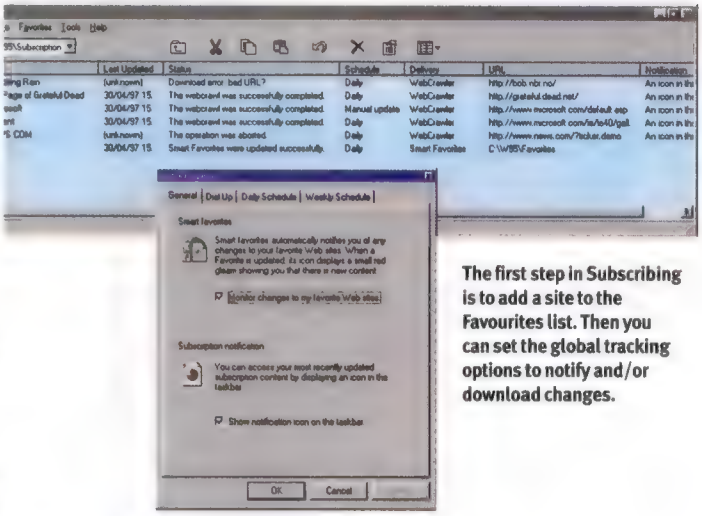
The Active Desktop integrates with the existing desktop by displaying Windows 95 icons and shortcuts on a transparent overlay to the HTML layer. In this way all the desktop objects are active, adopting a 3-D appearance when the cursor hovers over them. It gives the old stodgy and inflexible Windows 95 shortcuts a new lease of life.

Webcasting

One of the main uses for Desktop Components is to trigger the broadcast HTML technology that Microsoft, along with everyone else, has suddenly become very keen on. Microsoft provides Desktop Components for a few news, sport and weather channels already and many more will follow as and when distribution deals are signed. You can create your own Desktop Components to broadcast messages over an intranet or download them from Microsoft and others to activate news tickers, for example.

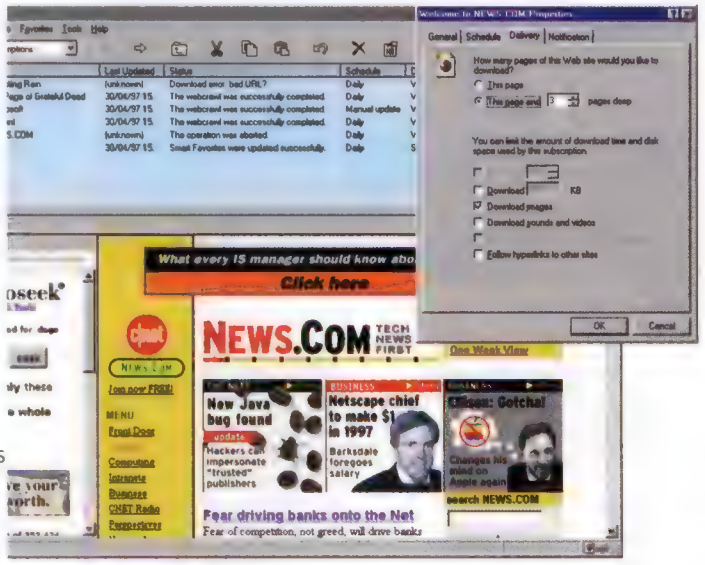
As well as receiving standard channel broadcast information, IE4 includes a Site Subscription scheduler which monitors selected Web sites and notifies the user when new information appears. This feature also allows these Web pages to be downloaded in the background so they can be viewed offline later. This also makes life easier and cheaper for mobile users by cutting down the length of time they need to spend online.

Microsoft has included both Push broadcast technology and the site subscription scheme under the heading of Webcasting. The company has also come up with a new specification, Channel Definition Format (CDF), for this technology. It's lodged this spec with the World Wide Web Consortium (W3C). Predictably, Netscape has opted for a rather different Push format. For more details on Push turn to the article on page 62.



The first step in Subscribing is to add a site to the Favourites list. Then you can set the global tracking options to notify and/or download changes.

Explorer can be set to tell you of progress while it checks and, if necessary, updates the links.



Once the requested pages are stored locally they can be browsed offline. This site is set to save pages three levels deep with no limit on the file size.

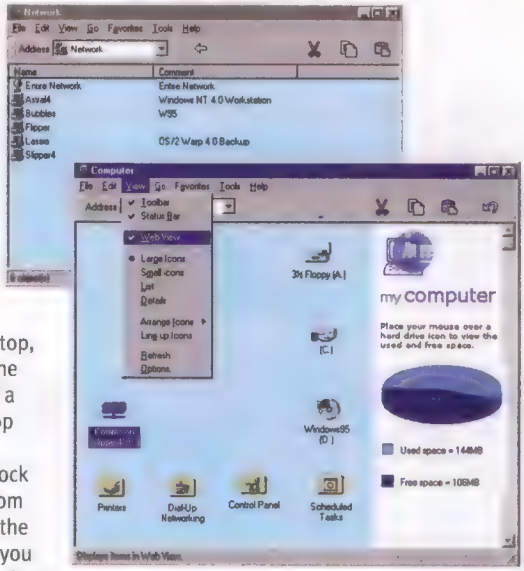
Working with IE4

If you're tempted to try the IE4 Platform Preview you should be aware that it's not intended to be used in anger. We really recommend that you give it a whirl on a spare PC because it really isn't an upgrade or replacement suitable for daily use. It's also a big download, 12Mb for the minimum install and 20Mb for the full monte.

The standard Internet Explorer 4.0 suite contains the Web browser, a new email client, and the ActiveMovie media player. The Enhanced suite (15Mb) adds a Web authoring tool, while the Full package includes multimedia conferencing and broadcasting.

You have the choice of getting IE4 as a browser or as browser-plus shell. The latter turns the desktop into a browser interface with navigational and presentation panes, forward and back buttons, a search pane, and an URL list, which automatically stores favourite sites and can tell you if the page has been updated.

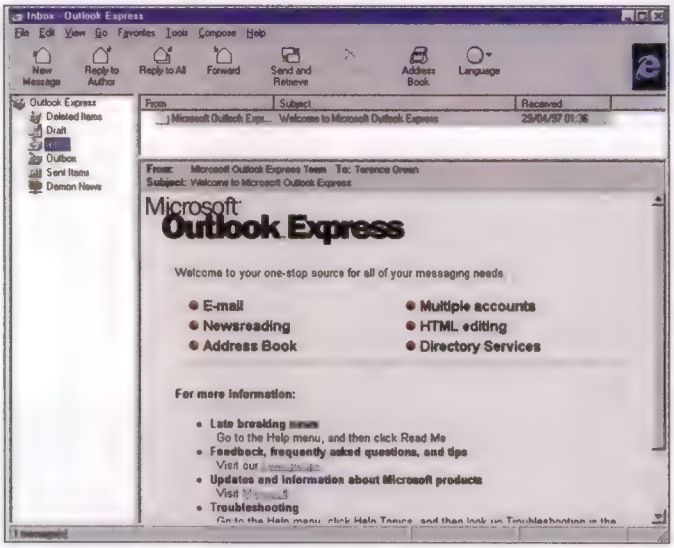
Once it's installed, the shell and browser combined need at least 8Mb of RAM to run properly. If you opt for the Shell integration you also get the Active Desktop, which installs the HTML layer and a batch of Desktop Components.



Internet Explorer Shell integration allows you to choose whether to view local and network resources in Web View mode or regular old Windows 95 mode.

If culture shock prevents you from getting on with the Active Desktop you can turn it off and go back to the standard Windows 95 desktop by opening the Desktop pop-up menu and deselecting the Active Desktop display. This will return you to your old familiar Windows 95 desktop, but still allows you to return to the Active Desktop at any time.

However, if the demands of shell integration and the Active Desktop should prove too much of a drain on your system, you can always get rid of it. To do this you use the Add/Remove Applications Control Panel applet.



The Outlook Express client included in the Internet Explorer 4.0 Suite is a cut-down version of the new Office 97/Exchange Server POP3/IMAP4 mail client.

Resources hog

The IE4 preview is a huge system hog and a very early cut of the software. Not all of the features work properly and you might even find it won't install at al on your system. The IE4 troubleshooting advice page on Microsoft's Web site didn't quite say that there was no way around this, but there wasn't in our case, even after trying to install it on freshly installed copies of Windows 95 and Windows NT. The only solution is to find another PC.

The browser war, again

Another potential trouble spot lies in people's insistence on having a choice of browsers instead of adopting a Microsoft solution throughout. More importantly, there is also a problem for Web servers. Rather then going the whole hog and fully supporting IE4 it's safer to support a smaller subset of features, which Microsoft and Netscape share.

Many of the new IE4 features do compare directly with those being added to rival company Netscape's Communicator package, but of course some are not at all compatible. Others are proposed standards which have yet to be to be ratified. Fortunately, Dynamic HTML is already on the lists of both Netscape and Microsoft and is awaiting ratification, but Microsoft's CDF is, at present, incompatible with Netscape products.

IE4 also introduces a bunch of whizzy new ActiveX features for example, but Netscape does not see eye-to-eye with ActiveX. According to Sam Seethi, Product Marketing Manager, Netscape UK: "Netscape will fully support ActiveX when it is an open standard. Until then we will support it through third parties via OLE support. Native ActiveX support will be available in future versions of Communicator."

Microsoft's stranglehold on the desktop mitigates this problem as long as you stay clear of any operating system on which IE4 and the Active Desktop won't run, but that does limit you to Windows 95 and Windows NT.

Verdict

The upshot is that the IE4 has great potential for enhancing intranets, but out on the Web there's still going to be confusion.

On intranets, however, especially Windows-only intranets, the Internet Explorer 4 shell on top of the new Memphis system will go down a storm as, allied to the forthcoming administrative enhancements in Memphis, it will enable businesses to disseminate information company-wide easily, while at the same time limiting the user's options for messing around.

Terence Green

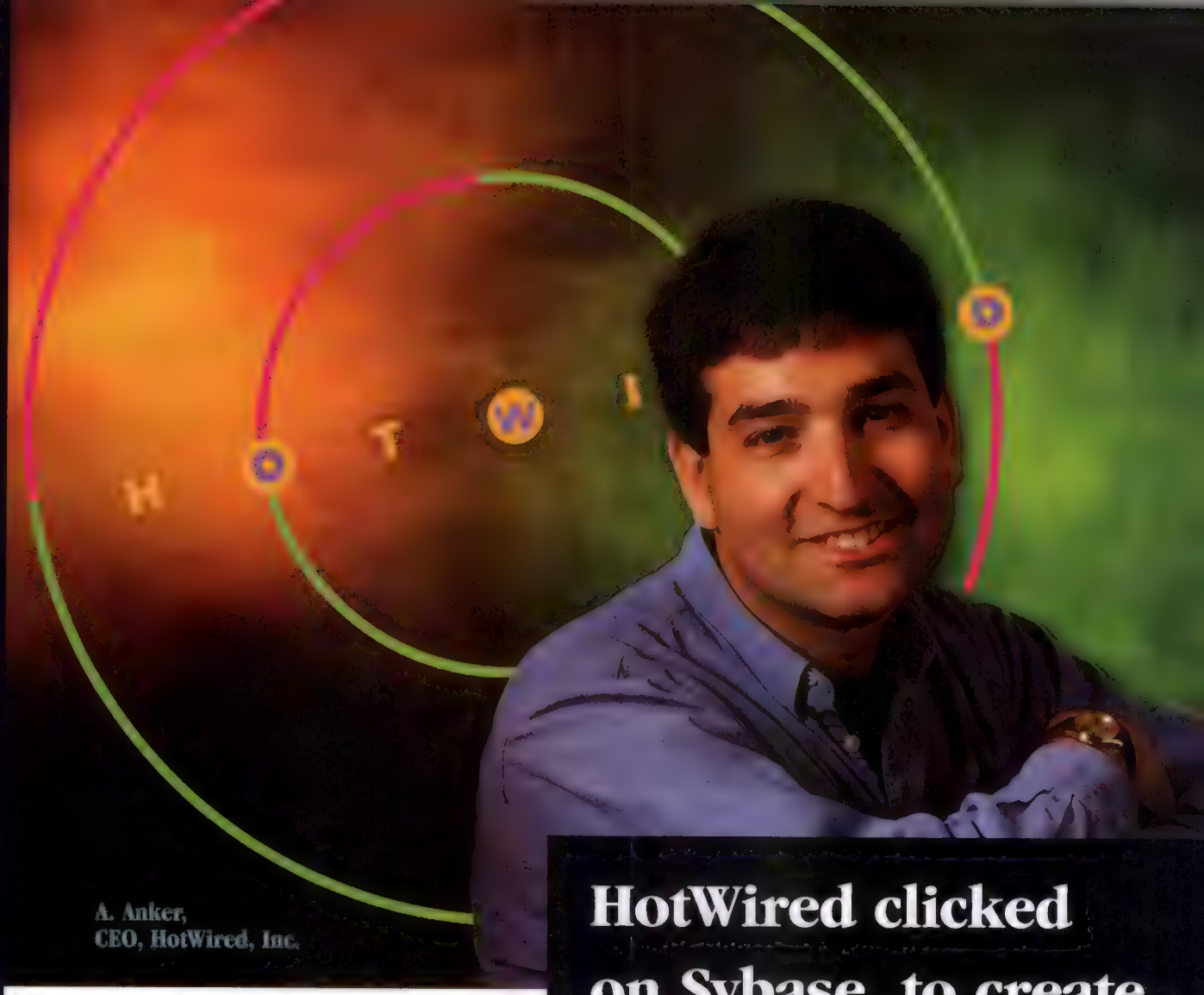
IE 4.0 Platform Preview
Contact *Microsoft*
Phone *(0345) 002 000*
www.microsoft.com/ie/

Microsoft and the Net

The primary impulse driving new computer sales is the Internet and the prospect of worldwide data communication. Microsoft's aim, therefore, is to associate itself with the Internet as closely as it can. As a senior Microsoft executive said: "Ultimately more people want to communicate than compute." Microsoft has publicly marked its adoption of all things Net-related under the phrase 'embrace and extend' and this is what's worrying many in the Net community. It's a matter of interpretation, with many in the Net community believing that Microsoft is adopting Net standards and gearing them to its Windows operating systems and applications, rather than the other way around.

Microsoft is now reaching out to all Windows users with IE 4.0. Its place at the centre of Memphis, the next generation of Windows due for release in 1998, shows its importance to the Redmond giant. It is vital that the marketing push behind its recent release is not derailed by adverse criticism. This is why the product has spent so long in beta, as Microsoft can't afford to release it in a mediocre form before perfecting the features in later editions, as it did with initial versions of Windows.

Embracing popular trends, from the graphical user interface to the Internet, has been one of Microsoft's fortés, and it has taken Windows through some changes in its time. IE 4.0 is the first real shot across the bows of the existing Net community. Microsoft just hopes to win this particular battle by appealing to Net newbies, not Net veterans.



HotWired clicked on Sybase, to create one of the most dynamic Web sites.

There are cool places on the Internet. And then there are truly hot ones—like the HotWired™ Network (www.hotwired.com), serving over two million page views every day. What helps HotWired generate all this heat? Sybase.® We provide the database and Internet Internet Solutions solutions that run their site end-to-end. We make it dynamic. Personalised. Different every time you see it. We even help track visitors' browsing habits, so content is automatically updated with each visit. Which is why more of the top Internet sites run on Sybase than any other solution. For a more in-depth look at what we've done for HotWired, visit www.sybase.com/hotwired or **for details of our product range visit www.powersoft.com.**

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Courier V. Everything with X2

We take a look behind the X2 technology hype as we test the first 56.6Kbps modem from USR.

The arrival of 56Kbps technology is likely to have a profound effect on how people use the Internet. Graphical sites will become more feature-rich and the distribution of audio and video data will increase. Of course, 56Kbps isn't that fast in the hierarchies of the Internet's infrastructure, but it certainly improves things for the end-user.

We got hold of the latest X2 code from US Robotics (USR), along with one of its high-end Courier V.Everything modems. These modems have a flash chip which can be software upgraded at a very reasonable price.

The X2 upgrade process works in much the same way for all flash supporting modems and that includes Sportsters. Nevertheless, you should check the dates with US Robotics before getting the upgrade – many, older USR modems may need to have a chip replaced first.

The X2 upgrade is a small program that changes the code the modem actually runs. For Sportsters, the upgrade application is a Windows 95 program. Courier owners, on the other hand, have to make do with a DOS program. Basically, both programs just squirt down the new UK code to the modem, and verify that everything works properly.

Sportster users now have a modem that should run at a maximum speed of 56Kbps, but as Courier users, we had to take one more step. Upgrading the BIOS installed the X2 code, but it wouldn't yet work at X2 speeds. We then had to dial a US number to activate the X2 features. US Robotics say that this step will be removed when the UK code ships.

Performance tests

To test US Robotics' claims, we joined UUNet Pipex's X2 trial and downloaded files using both V34+ and X2, to see if we could measure any differences. All of our tests were carried out over a cable phone line, which, claim US Robotics, should produce faster results than standard BT lines. We will investigate these claims further when X2 ships. Flipping between modes is just a matter of knowing the right AT command, as shown below. With these commands, you can carry out your own tests and see exactly how much faster X2 runs.

We connected to the UUNet X2 phone number five times on the trot, and managed to connect at 52Kbps every time. US Robotics is phasing in updated versions of the firmware, which will take it closer to the theoretical maximum speed of 56Kbps. The current versions are operating comfortably at 48Kbps and beyond – still quite a bit short of the maximum, but still much better than 33.6Kbps.

Actually connecting to the IAP didn't take any longer than usual. Browsing the Web, however, appears much smoother. Although not instantaneous, pages do appear more quickly. Most text parts of the page appear immediately, as do many of the smaller graphics on a page, such as icons and buttons. Larger graphics still take a bit longer to come down the line, but are noticeably quicker than with a 33.6Kbps connection.

To test the difference in speeds, we grabbed a couple of binary Zip files from UUNet's FTP server (*see graph, above*). This should mean that there's very little latency in the connection between UUNet and the X2 modem. The download was noticeably faster than normal, due mainly to the way the download size increased in large steps of 4 or 5K at a time. Much better than the V.34 connection, which was downloading chunks at around 1.5K a time.

Remember that, although your modem might be faster than average, and your IAP may support X2, you're still at the mercy of the Internet as a whole.

Should you upgrade?

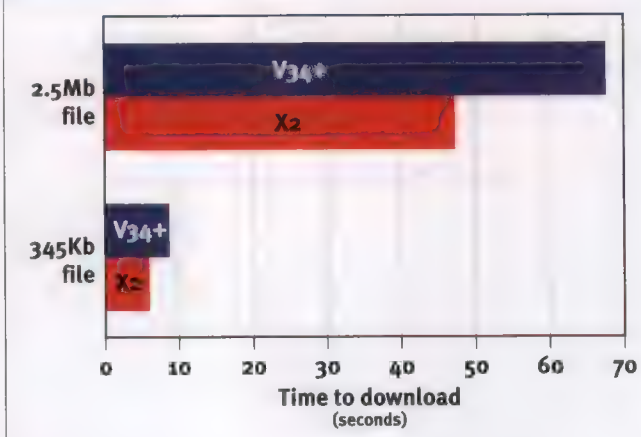
There's a strong temptation to rush out and get the fastest modem possible, but until a 56.6Kbps standard is agreed on you're taking a gamble and may find yourself with the Betamax of the modem world. That said, surfing at 56Kbps sure feels a lot better than wading around the Web at 28.8Kbps.

★★★★

Steve Browne

Courier V.Everything with X2 Technology
Price *£299; X2 upgrade is free*
Pros *Easy installation of X2, noticeably faster downloads.*
Cons *No standard for 56.6Kbps yet.*
Contact *US Robotics*
Phone *(01753) 811 180*
Fax *(01754) 695 555*
Web www.usr.com

Just how fast is X2?



We tested just how much faster X2 is by downloading two zip files. One was 2.5Mb, the second was 345Kb. On average, the files were downloaded 30 to 31 per cent faster using a modem running X2. All tests were carried out on Pentium 125MHz PC, with 16550 UART and Courier V.Everything modem using an X2 update. The telephone line used was a standard Telewest domestic telephone line, during normal business hours.

IAPs backing USR's X2 standard

AOL	ArgoNet
Cable Internet	CompuServe
Cable Online	ClaraNet DialNet
Dorset Internet	Force9 Internet
Netcom	Oxford
Technocomm	Community
UUNet Pipex	Internet
Virgin Net	Which? Online
Zen Internet	

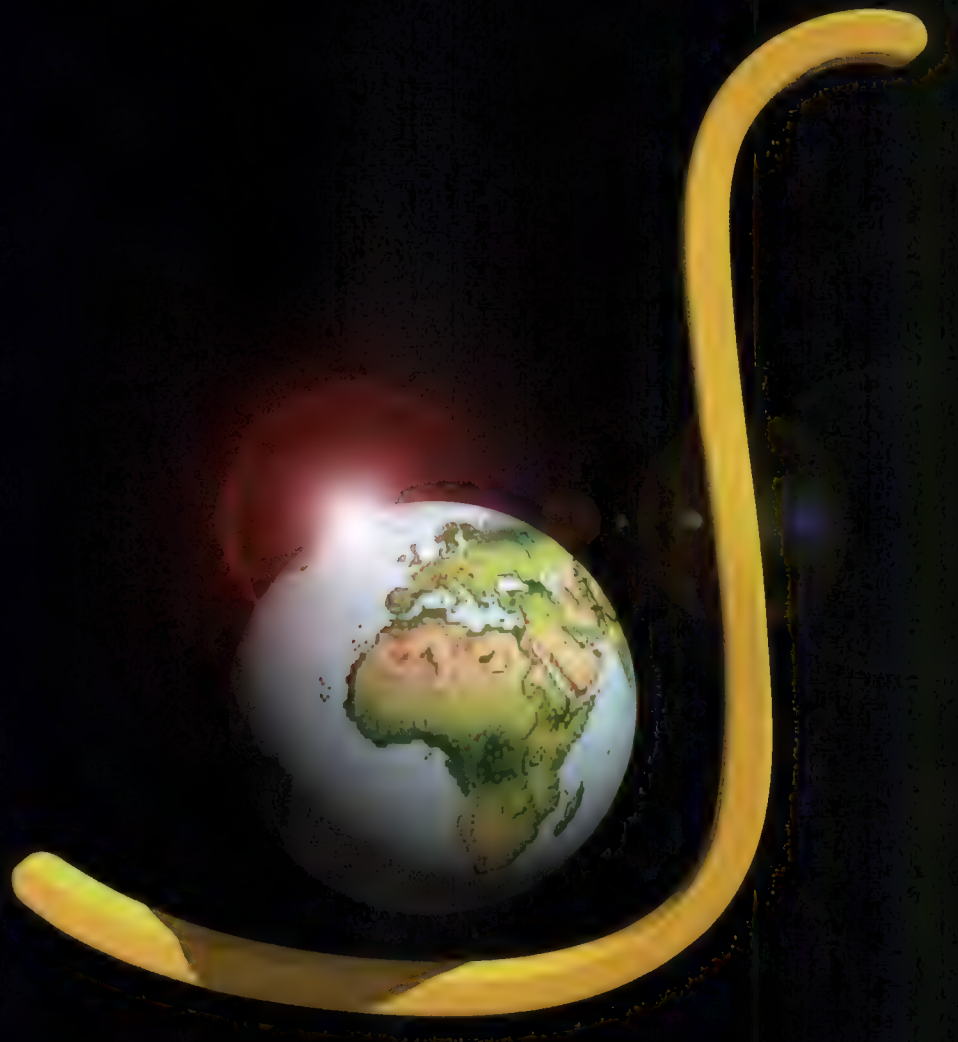
● Next month we'll put modems using the Rockwell/Lucent Technologies K56flex technology through their paces.

AT commands for X2

V34+ mode: Sportster – ATS32=34&W, Courier – ATS58=1&W

X2 mode: Sportster – ATS32=2&W, Courier – ATS58=0&W

sonnet internet



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SITE-BUILDING TOOL

NetObjects Fusion 2.0

This is a powerful tool for anyone who has to create and manage Web pages.

Although there are plenty of Web page builders around such as FrontPage, HotMetal Pro and PageMill, there's a distinct lack of site builders. NetObjects redresses that balance with Fusion, an industrial-strength product that focuses on ease of use, but also manages to shove in all the features you need to manage your Web site.

Fusion allows you to choose from seven layout templates which include corporate, intranet, marketing and publishing. You then customise these to create your own house style. Most of the basic functions are carried out using drag-and-drop or simple mouse-click actions, and with all the features available from a central, five-button menu bar you shouldn't have any problem getting up to speed quickly. From the main menu you can access site or page views, site styles and the site assets. In site view, you're presented with a graphical representation that looks a lot like an organisational chart.

Clicking on any of the pages then takes you to that page in page view. Once at a particular page, Fusion shows a set of object-specific, floating tool boxes that give you quick access to the meat of creating HTML pages. For example, if – on a PC – you right-click a button bar, the Properties box related to that object is brought up, including any related scripting. Similarly, if you right-click on a Java component, it brings up a tool box that gives you access to the underlying scripts and methods.

Fusion also comes bundled with Acadia Infuse, a JavaScript development environment that incorporates script navigation, integration with Netscape LiveWire and visual drag-and-drop editing.

Running a site

As sites become more complex, dedicated Web site management tools are fast becoming a key issue. Fusion gives you a set of tools to make site management easier in three key ways.

First, it gives you a site import facility that optionally converts each page to a Fusion graphical format. The links and all the related objects are brought to the desktop, so that when they're combined with the site map viewer, you can use it for maintaining version control.

Second, by accessing the Site Assets from the main menu screen you can see a list of all the resources used on your site. Resources are organised into four groups: external files; links; data objects; and variables, all of which are accessed by clicking on the appropriate button in the Secondary Assets View window. You can change a single resource and have that change reflected throughout the site. For example, if you change a common button bar's look, you only need do it once because Fusion automatically finds all other instances and makes the changes. Or, if you re-assign external page links, that's referenced in all other site pages.

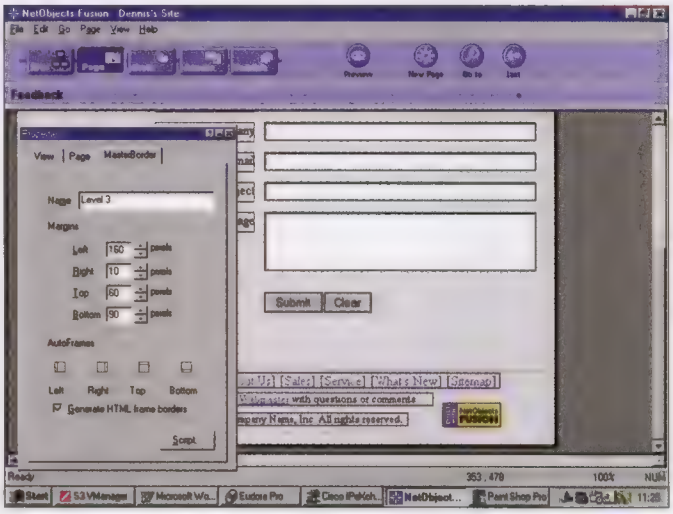
The final management-related option is the SiteStyles Manager, accessed by a single mouse-click from the main menu. This allows you to set global styles for the graphical components like banners, buttons and lines so that your site has a consistent look throughout, and you can concentrate on the creative stuff. Fusion provides 50 pre-defined styles, which you can use as the basis for customisation. Some are garish, but there are also plenty of professional-looking styles to choose from. Fusion also allows you to create user-defined text styles, and provides a comprehensive bank of Microsoft Web fonts.

Master Class

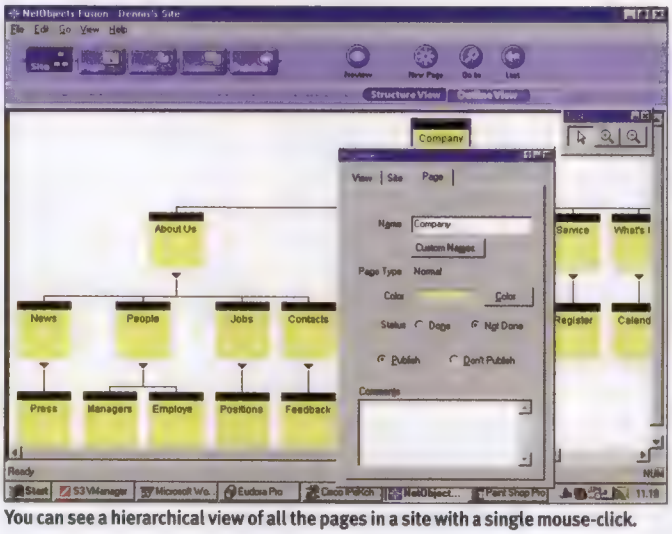
Fusion introduces a neat idea called MasterBorders, which lets you design master elements in the page margin. For example, you can create in the margin navigation elements or artwork you want to appear throughout a section or through the whole site. At the click of a button, you can also turn any MasterBorders into an HTML frame.

Once you've selected the border as a frame, you can then set its properties to be scrollable, resizable or borderless, with or without background colours and pictures. These features could save you a great deal of time effort and can form the basis for frame-based pages.

Another great feature is Fusion Components, a set of Java-based objects including a site mapper, tickertape and CGI script-based autoforms. Used in combination with Infuse, you can create some pretty zippy looking interactive sites.



To get access to each object's properties just use a single right mouse button click.



You can see a hierarchical view of all the pages in a site with a single mouse-click.

Publishing your site

Once your site is done, publishing it is a piece of cake, especially if you're uploading to a remote server. If you're going to a remote server you need only know the server name and path names for the remote HTML and CGI folders (which you can get from your access provider) along with your user ID and password.

At this point, all you have to do is simply click the publish button and Fusion handles the FTP transfer automatically.

Verdict

Fusion is unique. It's as close to a complete site builder as you're going to find and while this review has only touched on the key features, the product has enough depth to satisfy even the most demanding webmaster.

The emphasis on ease of use and site management make Fusion a product that can be used by anyone and we have no hesitation in recommending it.

★★★★

Dennis Howlett

Fusion 2.0
Price *£450 (incl. VAT)*
Pros *Ease of use; well-organised with a rich set of features that are easily accessible.*
Cons *You might not like the templates provided with the package.*
Platform *Windows 95, NT; Mac version is still in beta*
Contact *Unipalm*
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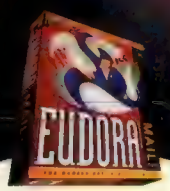

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DIGITAL CAMERA

Ricoh RDC-2

An impressive-looking camera, but the image quality could be better.

When you open the box of the Ricoh RDC-2, your immediate response is "Ooh, aah!" and techno-gadget freaks will love the look of the unit with its sleek silver finish, multiple buttons and fold-up LCD viewing screen.

However, for the average user looking to take photos and then transfer them over to your PC, the Ricoh RDC-2 is a mixed bag.

The snazzy design of the Ricoh camera can't disguise the poor picture quality.

Installation of the software and plugging it into your PC, in my case a Macintosh, is a doddle.

But plugging the camera into your PC and transferring your pictures isn't nearly so simple; the instructions are more than a little confusing: what the manual says will happen is not exactly what happens.

Happily, once you make a connection and the transfer of pictures is completed, you get to play with your photos in the rather splendid Ricoh PhotoStudio 2.0 software.

PhotoStudio looks and behaves much like Adobe's Photoshop, and you can import all your filters from the Adobe program into PhotoStudio. PhotoStudio has some neat features including allowing you to record sounds to go with your pictures; suddenly, you are Martin Scorcese, recording life on the street which you will share with the world via the Web.

Sadly, that's all the pictures are really good for. The image quality, using Normal mode, isn't as good as I'd hoped – the results were a bit on the dark side.

Using the Fine mode you can get much better results, but you can only take six shots at a time in this mode, unless you upgrade the camera with an additional memory card. You can take 19 pictures under Normal mode and 38 using Economy – which I wouldn't recommend.

The camera feels quite heavy in the hand, but most of that weight is down to the four A4 batteries used to power the unit – and it's only too easy to use those up quickly (I managed it in a day). The unit also feels and sounds clunky, which is worrying for a £900 camera.

You can, of course, work on your images using the software supplied, but it took a bit of time to achieve satisfactory results. For Web use, the pictures are fine, but with a price tag of £849 I'm not sure many Web masters would go for it.

However, Web masters may well be interested in a new model from Ricoh, shipping this month, which will have many of the features of the RDC-2, but a price tag of £599.

★★★☆☆

Mike Hales

Ricoh RDC-2
Price *£849; £999 with LCD screen*
Pros *Excellent image editing software; a sophisticated camera.*
Cons *Disappointing picture quality; comparatively expensive.*
Contact *Johnsons Photopia*
Phone *(01782) 717 100*
Web www.ricoh.co.jp

DIGITAL CAMERA

QuickTake 200

An excellent way to create digital images from the folks at Apple.

I excitedly ripped open the box of the Apple QuickTake 200 digital camera to examine the contents: one camera with 2Mb memory card, two leads to connect to a serial port or a video machine, a software CD and one dodgy-looking piece of bent plastic (which turned out to be a viewfinder and was the only useless item included).

Kit examined, I, like most PC users, started to plug it in and ask questions later and within five minutes I was happily snapping away at anything within range. It was easy then to take the photos onto my Mac and display them at a reasonable size (640 x 480 pixels).

An idiot-proof camera, which should suit most Web masters.

The contrast and colour of the images was excellent, even under low light levels.

The camera is a pleasure to use. Mode selection is a simple matter of twisting a dial on the top of the unit. The bundled software includes Photo Deluxe – a watered-down Adobe PhotoShop for image editing, PageMill 2.0 and the QuickTake system software.

The 1.8-inch LCD display on the back renders your pictures clearly. The images are stored on the 2Mb card (it'll store 20 high-quality and 30 lower quality images) that slots into the right-hand camera grip.

Taking your pictures onto your Mac (or PC) is as simple as connecting the camera into your computer. OK, I know I sound like a manic presenter from the shopping channel, but the computer didn't even need to know what port the camera was plugged into and the software simply prompted me as to whether I wanted to download all the pictures in the camera or just one.

The camera has semi-automatic focus settings (close-up, portrait and long distance) and simple aperture settings – all you'd expect from a normal 35mm camera.

There's no flash, but with surprisingly good results in varying light conditions I wonder if it needs one. That dodgy piece of plastic I mentioned at the start, well, Apple call it an additional viewfinder.

For a very reasonable £400, you get an easy-to-use digital camera which produces images of a high enough quality to be used by multimedia and Web site designers alike. After a dodgy entry into the digital camera market with the abysmal QuickTake 100, Apple has learned a lot from its mistakes and come back with a little gem.

★★★★☆

Craig Lancaster

Apple QuickTake 200
Price *£400 (excl. VAT); additional 4Mb memory card £80*
Pros *Good picture quality, flexible, cheap, good software, easy to use.*
Cons *Dodgy viewfinder.*
Contact *Apple*
Phone *(0181) 569 1199*
Web www.euro.apple.com

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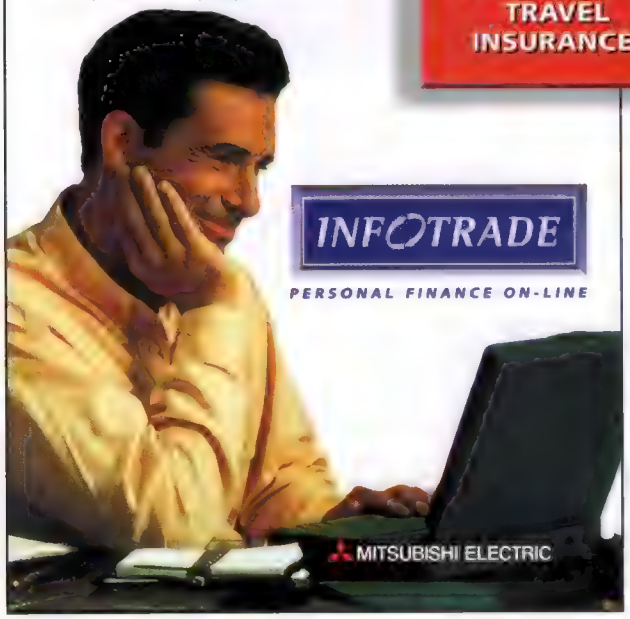

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CENSORSHIP SOFTWARE

ImageCensor 1.0

Promising protection from porn on the Net, this utility falls short of what it aims for.

ImageCensor detects and logs pornographic pictures, and does so on the basis of colour. It scans the screen every 10 to 300 seconds (user configurable) looking for flesh tones. Significantly, it doesn't matter if you're in a Web browser or reading from a CD-ROM; it just checks the image on screen.

The product notes says that ImageCensor is useful for system managers, teachers or 'worried parents'. As it happens, we can't think of any parents, worried or not, who'd want to use it as it works after the images have been downloaded, and not as a filter. However it could appeal to accountable system managers and wary teachers.

Of course it gets it wrong, but not as often as you might think. URLs with pictures of beaches and sunbathers gave predictably screwy results. And it missed some naughty black people and some black-and-white shots. But in general use over a three-week period it found nearly all our pictures of naughty white people. Only occasionally did it throw in sand-coloured background GIFs or, bizarrely, the head and shoulders of Murray Walker. But after playing with the sensitivity settings, the hit rate was improved.

The program comes on two floppies. The first installs on the target machine. The second is an administrator's disk. It's password-protected and easy to use.

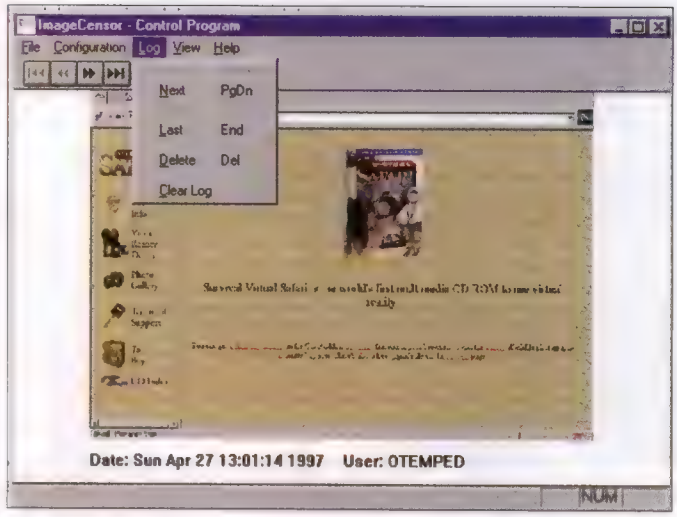
ImageCensor success is down to two things: its high strike rate on fleshy pictures and its instant log retrieval. Together, they allow the system manager to inspect more-likely-than-not pictures in the detection file at lightning speed. The alternative is scanning through browser history lists and guessing at content from URLs, or trawling, painfully, through the cache.

However, ImageCensor is not much good for worried parents, it kicks in after the files have been downloaded, which is too late. You can ask it to lock the machine, but in testing we found we could keep going. Just stick the alert box into the cor ner and keep surfing....That bit of code needs some more work.

ImageCensor is a deterrent, but it's not an antidote. Parents need packages which also search for suspicious words and which recommend suitable sites. However, system managers or teachers looking for proof of a misdemeanour might want to give it a whirl.

★★★☆☆

David Pitchford



Although it's pretty accurate, ImageCensor only detects flesh once it's downloaded.

ImageCensor 1.0
Price *£29.95*
Pros *Accurate enough, displays detected pics immediately.*
Cons *Unsuitable for protecting kids.*
Platforms supported *Windows 3.x, 95, NT*
Contact *MicroTrope Software*
Phone *(01295) 252 002*
Web www.microtrope.com/

SCANNER

Foto Tak-6

Getting your hard copy images online couldn't be easier – or cheaper.

The proliferation of digital cameras has presented but one method of getting your images into digital format. The Foto Tak-6 scanner is aimed at those who already have hard copies of their images and want to put those on the Web.

Despite its plastic body, the unit has a solid feel and certainly doesn't hog desk space, with its neat 190mm x 331mm footprint. But its maximum image scan area is approximately A5 (127mm x 178mm), so it's ideal for photographic prints, small artwork and – with the optional illuminated lid – transparencies and negatives, but not for OCR of A4 documents.

The only physical features on the scanner are two LEDs; one indicates stand-by power, the other that the cold-cathode scan light is ready. It draws power from a dedicated 16-bit card. The scanner stays in stand-by until you start it from your PC, shutting down again after a set period of inactivity.

Windows 3.1 users can only install the TWAIN-compliant software, which pops up whenever scan is chosen in a third-party program. It offers a pre-scan facility at low resolution, cropping controls and the ability to alter a variety of parameters before scanning.

With Windows 95 you can use the *Fun Scan* CD, a bundle including a graphics program, card and t-shirt designers, and Kai's bizarre Goo Fusion image manipulation. These are unified by a cartoonish front end. It's certainly friendly but might look out of place in a sober office. The key graphics application, IxlaPhoto Lite, also includes a browser and basic Web-page design templates. It's serviceable, but you might want to use a more advanced alternative, such as Paint Shop Pro.

The kiddie-style interface cannot disguise the fact that this is a very useful, and cheap, tool.

The scanning speed isn't fast, but it's reasonable. Optical resolution is 600 dpi, rising to 4800 dpi with interpolation. But 24-bit photos require huge amounts of memory and even when using 24Mb RAM I couldn't get close to scanning at the highest resolution. For Web sites, it's more than satisfactory.

Our review unit produced strong colours, with a slight bias to red, and high contrast. Scanning from prints gave the best results, while rather more care was needed with slides and negatives; in particular the heavy base colour of Agfa colour negative film didn't seem to be filterable.

As easy as it is to use this scanner, its slim manual could use a few more pointers. The conversion to monochrome dot pattern is also less than satisfactory, but this is probably best achieved in a separate graphics application.

So does low-cost mean low quality? No; the Foto Tak-6 is an excellent and economical way to get photos onto the Net.

★★★★☆

John Minson

Spot Foto Tak-6
Price *£109 (excl. VAT)*
Pros: *Produces scans which are well suited to Web use at a low price.*
Cons: *Kiddie software front-end; poor manual and online help; no hardware power switch.*
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Web Master Suite

This suite has something for every Web master, but it's sadly less than the sum of its parts

The market for Web creation packages is still really in its infancy, we're on version 1.0 and 1.1 of most products and they just haven't proved themselves to the general user yet. In fact, many of the Web products are based on – or are hybrid versions of – normal graphics packages. These are on at least their fifth or sixth reincarnation. So, should the market be dominated by these new best-of-breed, re-hashed graphics packages or should we continue to work with a combination of cobbled together non-compatible programs?

The two big Web creation packages currently available are Micrografx Webtricity – based on their best selling Graphics suite (watch out for a full review next month) – and Corel's Web Master suite. Both offer an amazing array of pre-drawn, pre-produced graphics and a huge array of features.

Corel's Web Master Suite comes on two CDs. The bundle includes two enormous manuals – the 680-page guide, and the equally huge clip-art book. The software takes 176Mb of your hard disk space for a full installation or 149Mb for the cut-down version. The suite has seven components: Web.Data; Web.Designer; Web.Gallery; Web.Move; Web.World; Web.SiteManager; and Web.PhotoPaint. You also get O'Reilly's Web Site 1.1 Server Software – a full, 32-bit, multi-threaded HTTP server and Netscape Navigator 3.01.

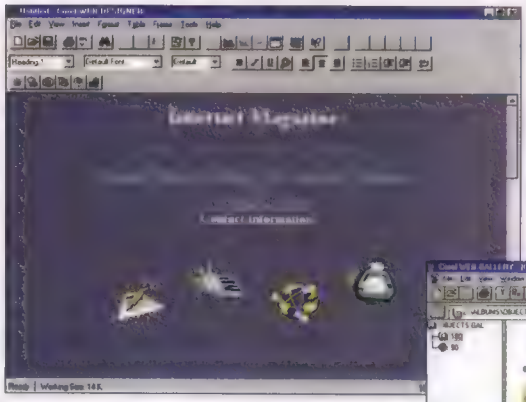
Poor integration

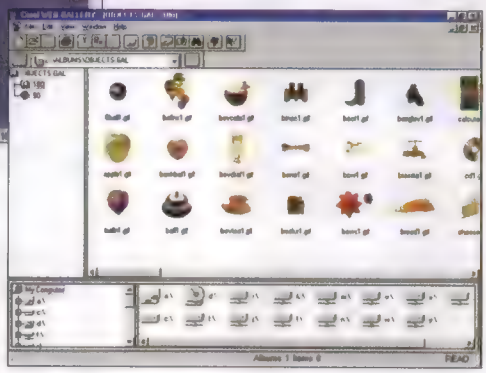
The main problem with Corel Web Master, as with Corel Draw 7, is its bittiness. If you had one integrated package to do all the things a Web developer wanted then it would be a sure-fire winner. However, the fact that Web Master has some seven different components makes the suite difficult to navigate for the new user. Corel has tried to integrate as much of the package as it can. There are links to each section from all the separate parts of the suite – just click on a GIF in Designer and you're linked straight through to PhotoPaint. However, when you're producing a Web site's constituent parts it's still easier to fire up each application separately and link up all the sections later.

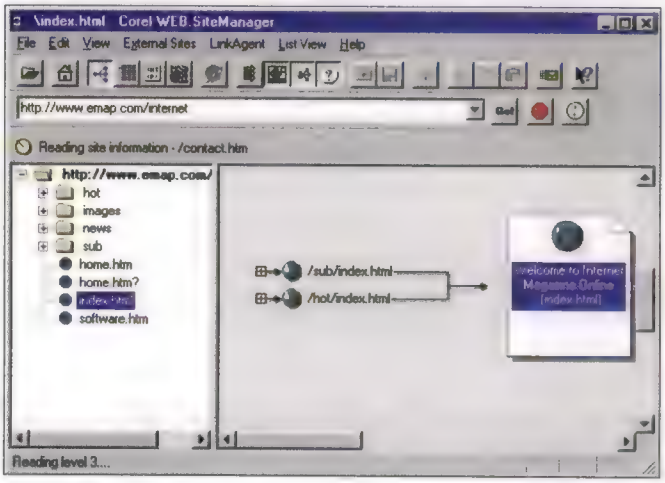
Web.Designer is one of the main parts to the program and it's the starting point for most users of the suite. Web.Designer links together the different sections of a Web site, and also lets you build simple HTML files. It's the equivalent of a cut-down version of Netscape's Navigator 2.x's Edit program.

Adding the fancy stuff

Once you've got the outline of your site you can start to add graphics and colour. Web.PhotoPaint creates and edit bitmap images and photographs using Corel PhotoPaint 7 technology. After a few hours' practice you'll find you can produce and edit graphics for your Web site with ease, although the interface isn't as easy-to-use as something like Adobe PhotoShop or Paint Shop Pro. So you'll need to read the manual first to get the best out of this product.







Seven applications with little cohesion make this suite tough to master for the novice.

You use Web.Draw for producing and editing raster graphic illustrations, logos and simple 3D text, for example. Unsurprisingly, this program also uses Corel Draw technolog. The program is also quite straight-forward to use especially for those familiar with high-end computer graphics packages. If you're feeling artistically uninspired, Corel provides you with a CD packed with a library of more than 7,500 pre-prepared, royalty-free images and animated GIFs.

As well as the two main graphics programs there's also Web.move which allows you to create animations to bring your Web pages to life and Web.World which creates three-dimensional, virtual reality worlds, Web.Data which converts your Access, FoxPro, Oracle, Paradox, or dBASE legacy database information directly to HTML format, without having to first print the data out to a report and then convert that to HTML.

Site maintenance

As any Web site creator knows, half of the job of running a Web site is the maintaining of the site, and Web Master goes some way towards solving this troublesome headache.

Web.SiteManager gives you extensive Web site creation and management capabilities. The multiple-view interface allows you to view a site hierarchically, looking at all of the different file types, or concentrating on just small specialist parts of the site, such as email addresses. It also helps you to spot those two most hated of Web nightmares, nasty orphaned files and the dreaded broken links.

Verdict

This package has the potential to be a very good Web creation program – particularly for the graphics producer – but at the moment there are still better individual programs that can be pieced together to form a much better Web creation and site management package for both the beginner and power user. Tread warily.

★★☆☆☆

Marcus Austin

Corel Web Master Suite
Price *£199 (excl. VAT)*
Pros *A one-stop solution and it is good value for money.*
Cons *The whole package is not integrated enough; it concentrates too much on graphics and not enough on site management features.*
Contact *Corel*
Phone *(0800) 581 028*
Web www.corel.com

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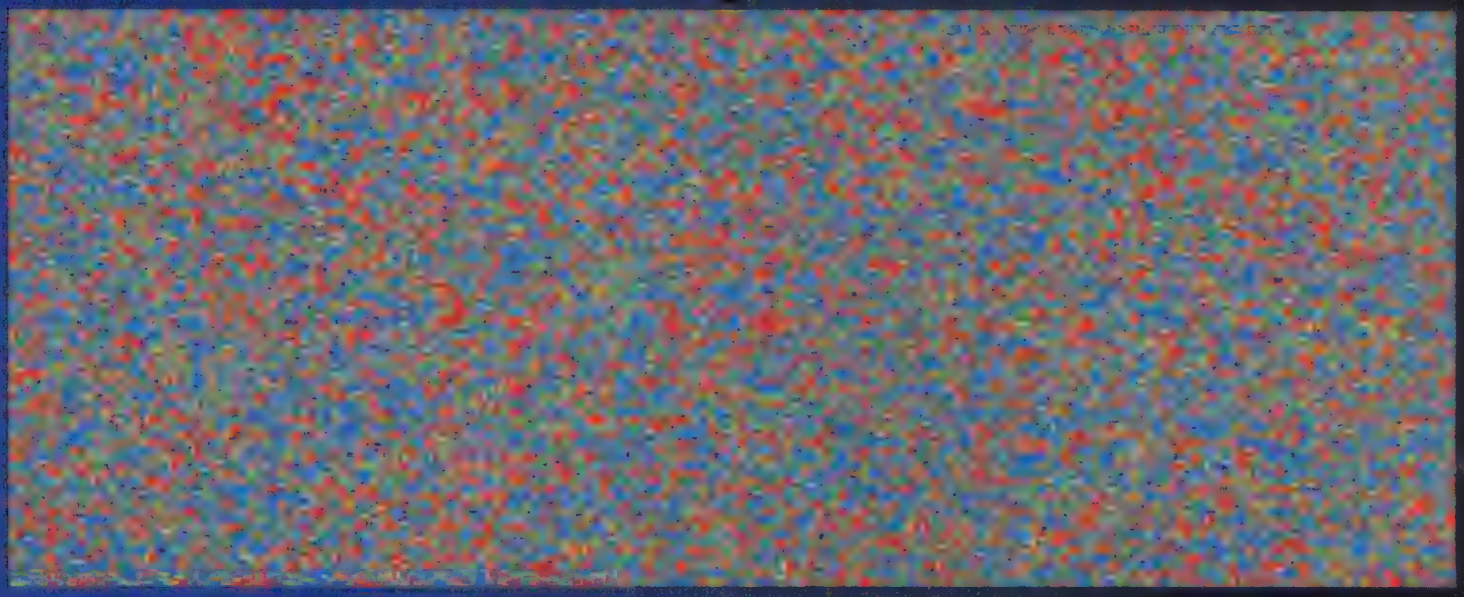

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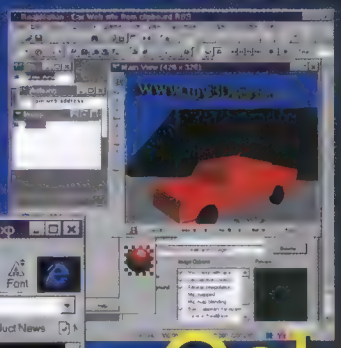

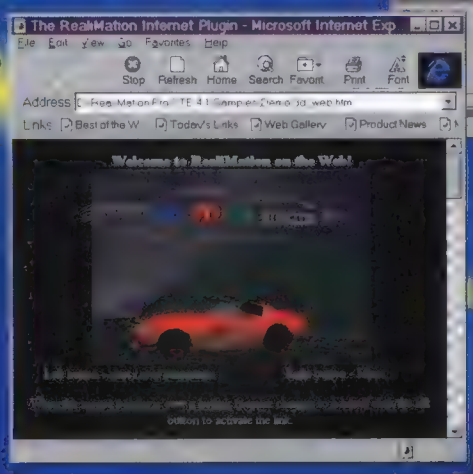

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The Networking Industry Awards, organised by NetWork Week and Network World, will be presented at the Birmingham Metropole Hotel on 24 June 1997, the first evening of the Networks 97 Exhibition.

How to take part

If you have a success story to tell, would like to attend the most prestigious event in the networking calendar or would be interested in sponsoring an award, contact:

Mark Lloyd, Event Manager
EMAP Computing
Greater London House
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London NW1 7QZ

Tele: 0171 208 5015/5176
FAX: 0171 208 4165
Email: markl@computing.emap.co.uk
http://www.emap.com/netawards

The Product Awards

- Network Management Product of the Year
- Network Analysis Product of the Year
- Remote Access Product of the Year
- Wide Area Product of the Year
- Voice Integration Product of the Year
- Switching Product of the Year
- ATM Product of the Year
- Internet/Web Product of the Year
- Network Application Software Product of the Year
- Server Product of the Year
- Mobile Communications Product of the Year
- Data Integrity/Back-up Product of the Year
- Intranet Product of the Year
- Security Product of the Year
- Best Product of Networks 97

The User Awards

- Best Use of Networking Products and Services
- Systems Integrator of the Year
- Reseller of the Year
- Network Project of the Year
- Telecommunications Manager of the Year
- Network Professional of the Year
- Networking Solution Award

The Judges

- Cliff Wilson, Coopers & Lybrand - Chairman
- David Beardmore, Learning Tree International
- Graham Jones, Communications Manager, Royal SunAlliance (Winner 1996)
- Andy Reid, Network Manager, Royal Holloway University of London
- Lieutenant Mark Evans RN, Network Professional of the Year 1996
- Steve Browne, Laboratories Director, EMAP Computing
- Dave Cartwright, Technical Editor, Network Week
- Maxwell Cooter, Editor, Network Week
- John Dunn, Editor, Network World
- Matthew Bell, Consulting Editor, Network World

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NETWORK WEEK

New this month

All the latest Internet product news brought to you in easy to manage chunks. Send your new product information to mikeh@internet.emap.com

net.Analysis 2.2

This is a multi-user analysis tool aimed at the managers of corporate Web sites, and it will have a price tag to match. Users can evaluate the speed of access to their site, the popularity of content on the site and server performance. The package also includes a number of report templates, which can be customised. Watch for a full review in the July issue of *Internet Magazine*.
Supplier *Unipalm*
Price *Tba*
Platforms *Windows NT; Solaris*
Web www.netgen.com

LinkScan 2.1

Electronic Software Publishing Corp. (Elsop) has introduced new features such as searching server aliases, server redirections, and examining some executions of CGI scripts in its new version of LinkScan (see *Internet Magazine*, May 1997).
Supplier *Electronic Software Publishing Corp*
Price *$49.95 for one user, multi-user licences available*
Platforms *All*
Web www.elsop.com

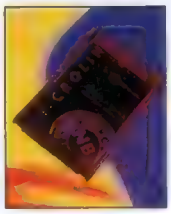
Canon PowerShot 350

This camera has an optical resolution of 640 x 480 pixels, a built-in flash and autofocus. It also has a 45mm colour LCD view screen and can store 11 images in fine mode, 24 in normal mode and 47 images in economy mode.
Supplier *Canon*
Price *£499 (excl. VAT)*
Platform *Windows 3.x, 95*
Web www.europe.canon.com/products/

Teleport Internet Edition

Global Village has updated its excellent Mac-only Teleport modem. The new unit is a 33.6Kbps modem, which takes power from the serial port on the user's Macintosh (GeoPort-style Macs only). The product comes with an excellent software bundle and a five-year warranty.
Supplier *Global Village*
Price *£129 (excl. VAT)*
Platform *Macintosh*
Web www.globalvillage.com

Pace Microlin NB 33.6



Pace has launched this PC Card modem, which claims to be the first one on the market supporting voice messaging. The card also has multi-level dial-back security, which prevents unauthorised access to a user's system. Watch for a full review in the July issue.
Supplier *Pace*
Price *£199 (incl. VAT)*
Platforms *All*
Web www.pacecom.co.uk

Z-Mail Pro

Claiming to be 'the most comprehensive, standards-based messaging package', Z-Mail Pro Version 6.1 from NetManage is aimed at organisations that consider email to be one of their mission-critical applications. This beta version supports IMAP4 and multiple platforms, and includes utilities to convert proprietary email postboxes into Z-Mail standards-based email.
Supplier *NetManage*
Price *Free (beta)*
Platforms *Windows 3.x, 95, NT*
Web www.netmanage.com/beta/zmailpro61

CyberStudio

CyberStudio promises to combine raw text editing with graphical tools. It supports tables and multiple forms in one page and its multimedia support is good. The program also includes site management tools. A trial version is available online.
Supplier *GoLive Systems*
Platform *Mac*
Price *$349*
Web www.golive.com

QuickSite 2.5

This Web site creation and management package focuses on small office-home office (SOHO) electronic commerce applications and now includes an 'EasyCommerce' module to help build e-commerce sites.
Supplier *DeltaPoint*
Price *$99 standard edition*
Platforms *Windows 95, NT*
Web www.deltapoint.com

OrderGenie

This Java-based tool is aimed at any business that wants to trade online. It's an online order entry system that aims to exploit the security and platform independence of Java and take high volumes of traffic away from a Web site to an SQL Server or other database back-end machine. A trial version is available online.
Supplier *Cashlink New Zealand*
Platform *Java*
Price *On application*
Web www.ordergenie.co.uk

OpSession

Currently in beta testing, OpSession is an application that allows remote access and application sharing TCP-based networks. It lets users email each other active and dynamic content. NetManage also offers the technology in the form of an API for integration into helpdesks, intranet collaboration and remote learning.
Supplier *NetManage*
Price *Free (beta)*
Platforms *Host: Windows 95, NT 4.0; clients: Windows 95, NT 4.0 (included in OpSession package)/ Windows 3.1 (standalone only) SunOS 4.1.x; Solaris 2.x; SGI IRIX 5.2 and 5.3/HP-UX 9.0x*
Web www.netmanage.com/products/opsession

Solstice Network Client

Sun Microsystems is shipping Solstice Network Client 3.0, which offers a set of tools, services and applications to link Windows NT/95/3.X users to heterogeneous intranets and the Internet. The Solstice Network Client works in tandem with Sun's Solstice NFS Client, which provides NFS v3 and NIS+ client capabilities.
Supplier *Sun Microsystems*
Price *Windows 3.1, 95 for $299.99; NFS Client sells for $79.99. Trial version available online*
Platforms *Windows 3.x, 95*
Web www.sun.com/solstice/Net_client.html

Web Server 3.1

Available as a free download from Novell, this product offers tight integration with Novell's NDS (Novell Directory Services). Administrators can use NDS tools to control access to the information stored on Web pages throughout their networks. It also supports 'virtual directories' and the Secure Sockets Layer (SSL) security protocol.
Supplier *Novell*
Price *Free*
Platforms *Server: NetWare; clients: Windows 3.x, 95, NT*
Web www.novell.com/intranetware/products/novell_web_server/

InterACS

Auric Web Systems has released InterACS. The software aims to reduce the costs of dial-up access control, authentication, account tracking and billing for IAPs. It manages authentication and real-time session log data efficiently so that it can reduce the number of authentication servers and administrators needed.
Supplier *Auric Web Systems*
Price *Tba*
Platform *Unix*
Web www.auricweb.com

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Please reply in confidence enclosing a comprehensive CV to James Hyde, Christopher Hamblyn Associates Ltd, 96 Evesham Road, Weethley, Warwickshire B49 5LW quoting reference number CHA/JH/389.

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Would like to be able to programme using HTML and Javascrypt, decode Web pages, create a secure link for bank transaction (SecureNet) and use e-mail and newsgroups? All this is possible on the computers at the Haut-Lac Centre with Internet access through an ISDN line.

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Hot Downloads

The best thing about the Web is it's full of free stuff. Get your modem at the ready for this month's selection of top downloads.

ICQ

Wondering why the strange acronym? Try 'I Seek You' – clever, eh! ICQ is a useful program that runs in the background while you're online, and checks to see if a pre-defined friend or colleague is also online.

Try I Seek You! are you there yet?

The time-limited beta version of the software allows you to register with the service. You input a few personal details – age, name, home page and so on – and you can choose either to allow anybody to contact you directly, or to be notified first. You then set up a list of other ICQ members that you want to be notified about when they're online. Once you're both logged on you can open a two-way channel and communicate away using text, voice or video.

Download www.mirabilis.com
Size *1.25Mb*
Platform *Windows 95 and NT*
Price *Beta is free*

Internet Software Development Kit

As well as containing the tools you need to develop ActiveX components, Microsoft's new Software Development Kit (SDK) also adds tools for the Java developer. As you'd expect, there's a heavy emphasis on building for the Active Client, which covers areas such as Dynamic HTML, components and scripting. To get the best results you really need to be running Internet Explorer 4.0.

Download www.microsoft.com/workshop/prog/inetsdk
Size *Varies, depending on the components downloaded*
Platform *Windows, Mac*
Price *Free*

Meridian 59

Meridian 59 is 3DO's 3D multiplayer Internet game, and it's just been updated. At the moment there's a free trial demo available. Apparently, "a battle between good and evil is waiting to erupt and immerse the entire world of Meridian in what could be a constant struggle for power." You wouldn't want to miss out on that now would you?

Download http://meridian.3do.com
Size *5Mb*
Platform *Windows*
Price *Free trial; retail version £19.99*

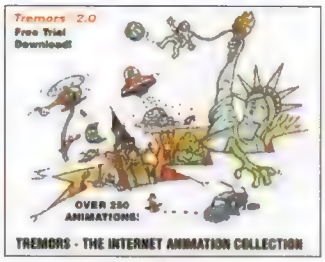
Beatnik

Beatnik is a plug-in for Navigator that allow you to play back most music and audio formats, including RMF, MIDI, MOD, AIFF,WAV and AU files. The neatest thing is its support for Rich Music Format, as this allows you to interact with the audio – changing things like the tempo, volume and pitch while it's playing.

Download www.headspace.com/beatnik
Size *2.32Mb*
Platform *Windows and Mac*
Price *Free*

If you want to develop for Microsoft's Active Desktop you need the new SDK.

Tremors 2.0



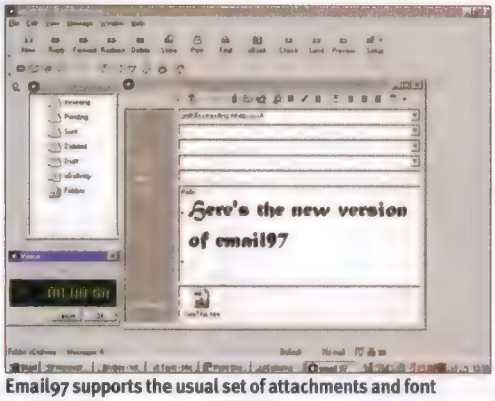
Tremors is a collection of Shockwave and GIF animations, which you simply copy and paste onto your site. The downloadable demo version of the product contains eight animations; the full CD-ROM-based product holds 300. The files are typically around 17Kb so they shouldn't add huge download times to your site.

Download www.ezone.com
Size *511Kb*
Platforms *Mac and Windows*
Price *Demo free; full version $195*

Email97

You only get a 15-day version of this email software for free, but it's definitely worth checking out. Email97 is a good-looking bit of software that supports both multiple email accounts and dial-up locations. Your mail message can include sound files and live Web links, as well as the usual document attachments.

Email97 also includes message compression technology, which it claims will reduce the overall size of your email messages by up to 50 per cent.



Email97 supports the usual set of attachments and font tweaking as you can see in this rather splendid email.

Animagic GIF animator

This neat bit of shareware produces animated GIFs that claim to be up to 80 per cent smaller than non-optimised GIFs. Animagic GIF animations can be built from individual frames or from existing animated GIFs. Special effects include fade-ins, fade-outs, dissolves and wipes.

Download www.rtlsoft.com
Size *453Kb*
Platform *Windows 95 and NT*
Price *Trial version free; $29 to register*

Applet Widget Kit 1.1

If you want to turn your hand to creating Java applets but don't really want all the hassle of learning Java or even HTML, try out this Kit. The claim is that you can create a Java applet without creating any code. A point-and-click interface leads you through the process of creating the applet and, when you're done, the Widget Kit goes away and creates the relevant code.

Download ftp.siliconjay.com/widget.zip
Size *315Kb*
Platform *Windows*
Price *Free*

Download www.e-corp.com
Size *2.2Mb*
Platform *Windows 95, NT*
Price *15-day version free; full version $29*

2Mail v2.0

This email software is brought to you courtesy of BusinessWare of Scandinavia and could help with any bulk emailing tasks. You can create customised letters for each contact and re-mail messages to groups of contacts. The free demo is worth downloading although it's limited to 100 contacts.

Download www.2mail.com
Size *3.8Mb*
Platform *Windows 3.x*
Price *Demo free; full version $99*

Ant_HTML 3.0

This is a handy add-on for Word 6.0 users, providing templates to create HTML files. The program can insert HTML code into any Word or ASCII document, has tools to convert special characters and can also make hard copies of HTML documents without the tags.

Download ftp.meia.com
Size *289Kb*
Platform *Windows*
Price *Demo version is free*

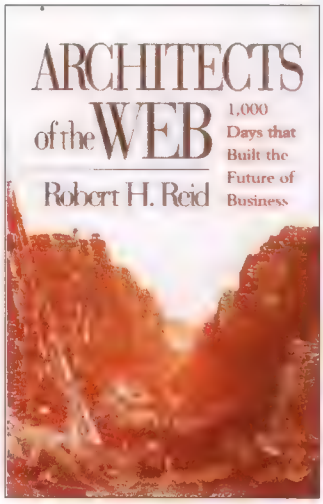
Books

As the Internet gains cultural acceptance, Mike Bracken reviews the latest books exploring its social development and the key figures controlling the future of the Web.

Architects of the Web

Sub-titled *1,000 Days That Built the Future of Business*, this book charts the course of the Internet's mutation from academic tool to business medium by examining key individuals. As such, the eight chapters almost chose themselves.

Starting with Marc Andreessen and Netscape, author Robert H. Reid moves through Rob Glaser and Progressive Networks, Kim Polese and the whole Java story, Jerry Yang



at Yahoo! and Halsey Minor at Cnet. Wrapping the story of the Net's development around these characters is easy, but Reid's choice of Mark Pesce (VRML pioneer) and Ariel Poler (at Web advertisement company I/Pro) look flawed as the Net's development has reduced their significance.

Nevertheless, the book contains many hidden gems, as you would expect from an ex-Silicon Graphics employee with easy access to the key players in Silicon Valley.

For example, Reid's chronology of the development of Java by Sun's green team is a fascinating account of how a project that could become the key technology of the information age was so nearly ditched.

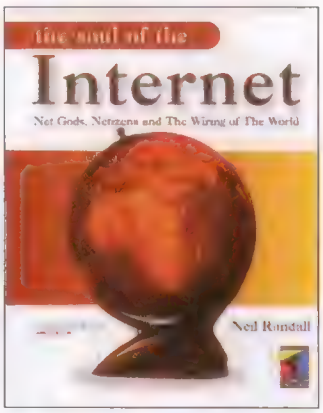
Although it's too simplistic to base the whole story of the Net around a mere eight individuals, the overall feel of excitement and a pioneering spirit comes across forcefully.

★★★★

Architects of the Web
By Robert Reid
Publisher *Wiley*
Price *£27.95*
ISBN *0-471-17187-5*

The Soul of the Internet

A far more ambitious book, Neil Randall's ramble around the Web is a looser but yet more rewarding read.



The subtitle of this work – *Net Gods, Netizens and the Wiring of the World* – gives it away as an ambitious attempt to define the Web's growth from a sociological point of view, not just in business terms.

With refreshing chapters on the Net's development in Europe and Asia, Randall displays a willingness to escape from the American view that the Net is but an extension of US values.

The book is peppered with mini-interviews and quotes, which give it a rather disorganised feel, yet the rambling chapters somehow mirror the Net's own unplanned and essentially chaotic development.

In many ways this book will stand as a work of historical importance. The author only begins to cover the birth of the Web more than halfway through the book, leaving much room for an educated outline of the Net's early development stages. The break up of the NFSNet and the birth of TCP/IP are particularly recommended.

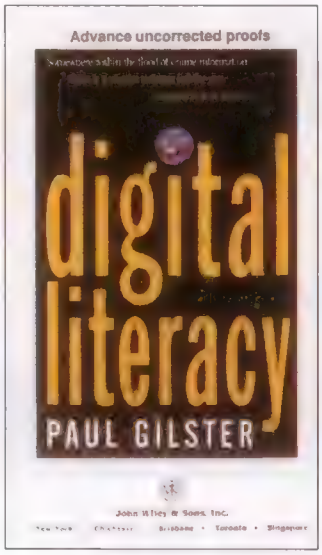
The book only loses steam towards the end, when business issues and the mass consumerisation of the Web stretch the author's attempts to provide comprehensive coverage of what is, by this time, a global mass-media phenomenon.

★★★★★

The Soul of The Internet
By Neil Randall
Publisher *Thomson*
Price *£19.95*
ISBN *1-85032-191-4*

Digital Literacy

Paul Gilster has written some pretty impressive books, such as *The Internet Navigator* and *Finding it on the Internet*. Unfortunately, this 270-page effort is not in the same class.



A curious mixture of a 'how to' guide and an academic text, *Digital Literacy* is little more than a high-minded treatise on the nature of the Net. Billed as 'Personal Preparation for the Digital Age', the work is essentially a first-person history of one author's journey into new media. However useful these single impressions may be, overall the book is wearisome to read and borders on the pseudo-philosophical.

Epigrams such as 'Critical thinking about content is the Internet competency on which all others are founded' may sound intellectual, but they quickly become pretentious.

The essential problem of this book is that it accepts various Net wisdoms, such as 'The amount of raw data will increase by a factor of 19 in the 1990s,' and then constructs arguements which deal with this perceived problem. Unfortunately, this constant acceptance of unprovable assumptions belies the book's academic accuracy and devalues its objectivity.

★★

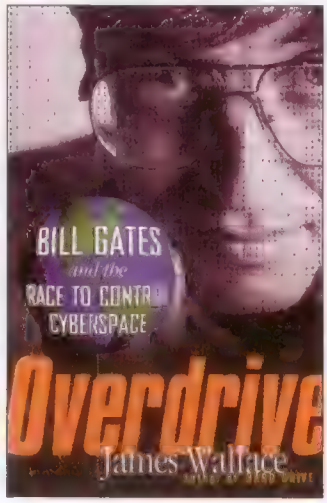
Digital Literacy
By Paul Gilster
Publisher *Wiley*
Price *$22.95*
ISBN *0-471-16520-4*

Overdrive

The Internet may be a cultural phenomenon, but where there's a buck to be made then US businesses won't be far behind. James Wallace has been quick to recognise this, and sees that the rise of cyberspace is central to one company in particular: Microsoft.

Sub-titled *Bill Gates and the Race to Control Cyberspace*, Overdrive is a seven-chapter work that charts Microsoft's initial ambivalence to all things Net related, and demonstrates how the software giant effectively made the Internet a part of its core business.

Although the book deals in great detail with the political dealings behind the FTC and Microsoft's attitude towards regulation and



legislation, this is essential to understanding how Microsoft dealt with rival Internet companies when the Net became important to them.

There is a dilemma here, though. Microsoft has learned a lesson from the Netscape experience, and is making its metamorphosis into a Net company into a rags-to-riches story of its own. Although *Overdrive* exposes some of Microsoft's sharper business practices, I suspect the long-term result will be to cement Microsoft's embrace and extend its metaphor with all things Net related far more than it could do on its own.

As ever, the book ends with an epilogue titled 'Battles Never End'. Too true.

★★★★

Overdrive
By James Wallace
Publisher *Wiley*
Price *£16.99*
ISDN *0-471-18041-6*

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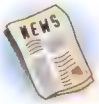

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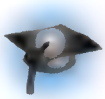

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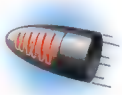

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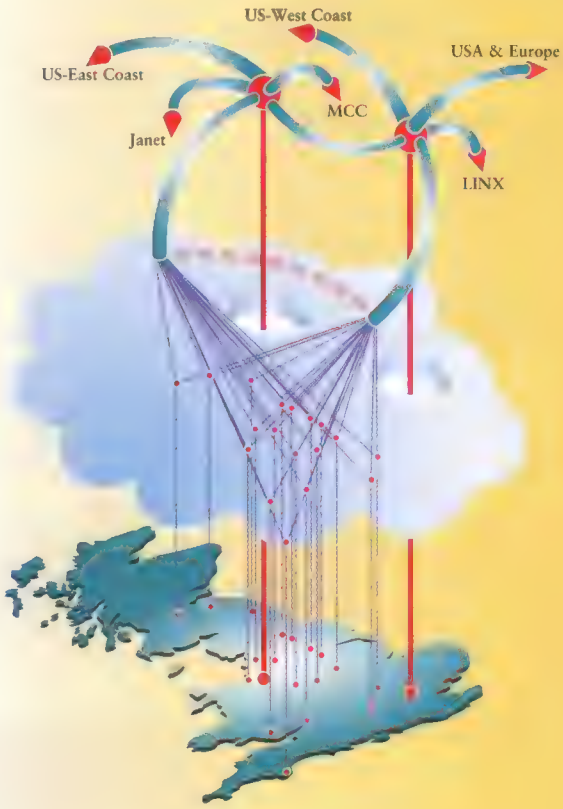

U-NET

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01.032/1/5

site survey

Durex World

Designers: *AKQA*
Web: www.durex.com
Development time: *Six months*
Development costs: *Undisclosed*

If you're not sure which flavour condom your significant other prefers, you need to take a look at the brand new Durex Web site for the most complete prophylactic round-up on the Net.

Condoms are big business. Hundreds of millions are used around the world every day – religious doctrines permitting – and they can be bought quite easily from chemists and drug stores just about everywhere. Considering the relative ease with which you can get hold of this form of birth control, it seems almost redundant to develop a major Web site devoted to promoting them. But not quite.

The concept

The man behind the site's overall concept is Vincent Jeanniard at the London International Group (LIG), the company that makes Durex condoms. His brief was to create a Web site that would have worldwide appeal, not just one aimed at the UK and US markets. The site is packed with informative facts and figures about sex and condoms; it offers advice, competitions and even a good deal of fun.

Jeanniard comments: "We supply both global and local information reflecting the different markets around the world. We sell condoms in around 130 countries. What we're doing is co-ordinating the marketing activities of those countries on the Internet."

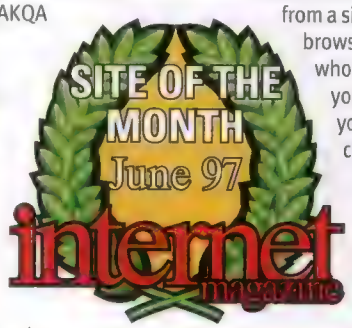
Typical of the content on the UK home page is a competition where you can win a year's supply of condoms. But how the hell do you define a year's supply? Is that 365 condoms, one for each day of the year, or what? Jeanniard laughs and explains: "Actually, we did a survey in the UK that revealed that British people have sex on average between 70 and 85 times per year, so that's what the prize is based on."

Another notable feature of the site is the downloadable screen savers of sexy models that pout, kiss and throw condoms at you. You can choose between four different models, two male and two female – no sexism here. On the US version of the site you can get free condoms by leaving your name and address, and you also have the chance to win a Durex World t-shirt.

The final part of the brief was to make the site sensuous and to target it at young adults. It's mainly male-oriented, both because most users of the Internet are male, and because most condoms are purchased by men.

Designing rubber

AKQA, the design company that developed the actual site, has been working with LIG since 1995. So AKQA had a lot of input into the site's design, and the end result is pretty much as AKQA had originally envisaged.



No single Web technology has been singled out for preferential treatment in Durex World; it's an eclectic mix of Shockwave, ActiveX, CGI, Java and JavaScript all working together to pump out a stream of rich content.

Ajaz Ahmed of AKQA explained the thinking behind the design. "We decided to design for the latest browsers. Obviously we make sure that there's content that can be viewed with earlier browsers, but we've included the latest features possible with the new technology. We aim to be the flagship, the leading site to be using these technologies to deliver rich content to the most sophisticated browsers.

"Secondly, we designed the site around what we call seekers and browsers. These are the two types of groups we've identified as using the Internet. A seeker is someone who knows what they want from a site, while a browser is somebody who's just surfing. If you know where you want to go, you can get straight to the content. If you don't know where you're going, it's easy to get to the content from the home page."

The team at AKQA provided most of the content for the site, as well as the technology. "We decided to move away from the icon-driven sites and explain the value of a hot link with meaningful sentences. In this way, casual visitors to the site know exactly what they're getting when they click on a link."

What's it like, then?

Durex World is a graphics-rich Web site designed to be viewed with the latest browser technology. And that even includes the new channel

Smutty innuendos and seamless graphics are all part of this site.

technology built into the next release of Internet Explorer, IE4.

The home page is split into a couple of distinct areas, with the main content area and the menu system down the left side of the screen. So far, so normal. When you first connect, the options in the main content area are the same as those in the menu bar. The first real indication you get that something is a little different here is when you roll the mouse over one of the menu items on the left – it changes colour to show it's been selected.

Navigation is easy. Click on one of the menu options to take you to the Departure Lounge, the Lovezone, the Study, the Clinic, Broadcast or Online Lovers. To get to the UK-specific content you go to the departure lounge and click on Europe from the map of the world that appears, and select Durex UK.

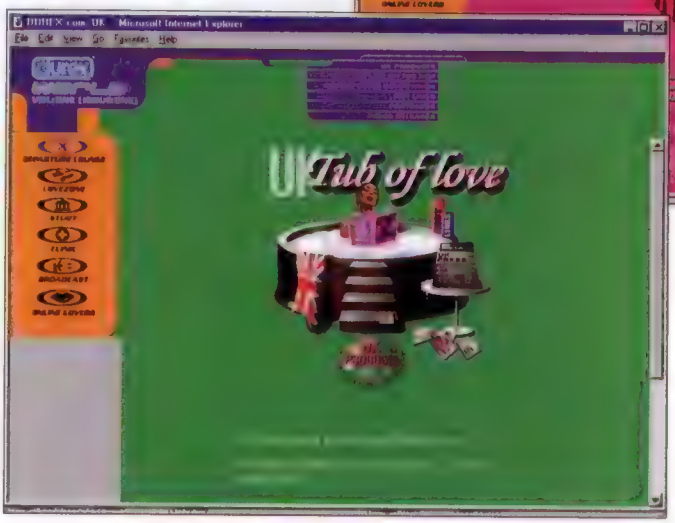
The UK section has quite a bit of content. You can enter the Chat-Up competition, where the best chat-up line submitted wins that year's supply of condoms we mentioned earlier, which could come in handy. There's a full list of UK Durex products, along with hot links, postcards and an interesting area called Sex Life on the Map, which details the results of a wide-ranging sex survey of the UK. Find out exactly what the average libido looks like in your neck of the woods. (Oddly, the west of England seems limited to Devon and Cornwall.)

The general areas of the site are also excellently designed, with weird, wonderful and wacky content. Online Lovers is where you download some terrific, sexy screensavers. Just fill in the form with a few facts about your sex life, and you're taken to the download screen. I filled in *my* form, and Jodie now graces my screen when I leave the keyboard for five minutes...

Add in the attractions of the Lovezone, where you can pick up tips for making your sex life more exciting; the Study, where you can find out about the history and technical aspects of condoms; the Clinic, where you can pick up sexual advice from Dr. Dilemma, information about STDs (but not the diseases themselves) and how to use a condom; and you've got a great site with brilliant content.

Condom costs

Jeanniard is coy when it comes to revealing the site's development costs. He did say that they were lower than you might expect, and are comparable to the costs of the previous Durex Web site. Jeanniard goes on to explain that the site is inexpensive to maintain and update compared to other media. He feels that the Web will play an increasingly important role in marketing worldwide, purely because it's an all-encompassing, global medium. He clearly sees the Web as a major means of promoting and distributing information about Durex products.



Left: Talk dirty in the Tub of Love.

Above: Take advice from the man who gives luurve tips to cupid.

Problems

The biggest design issue was how to attract the target market, and to make sure that the content was appropriate. For example, a tricky situation arose with the maps. Israel had to be put on the map of Europe, and the Arab countries on a separate map, because Arab nations don't recognise Israel as being part of the Middle East.

Another major obstacle cropped up with the US Food & Drug Administration (FDA), which wasn't happy with condoms being described as 'flavoured'. Apparently this is unacceptable, and leads people to imagine all kinds of rude things. The FDA was, however, happy to accept the description 'scented condoms' instead. Strange folk, those Americans.

Skillful editing has made the site acceptable to all nations.

There were a few technical problems getting the screensavers to work correctly, but these were soon solved. Ahmed explained, "The creation of the site using these advanced technologies was clearly non-trivial. It wasn't easy. We're lucky to have some of the best Web coders in the world at AKQA, and some of the best designers. What we've tried to do is make it all looks seamless and intact, and we certainly had some challenges along the way. But because we knew from day one what kind of content we were going to include, it made it a lot easier to solve problems as they appeared."

What's next?

AKQA plans to continue in the same mould with other innovative, high specification Web sites. "The whole idea of Online Lovers and the broadcast area, where we're pushing content out to the user, is the way to go. We're talking about channels and other new technologies. We're looking forward to IE 4.0 and the concept of having channels on the desktop. We're totally ready for the future of the Web."

If Durex World is anything to go by, the future of the Web looks safe to me.

Clive Parker

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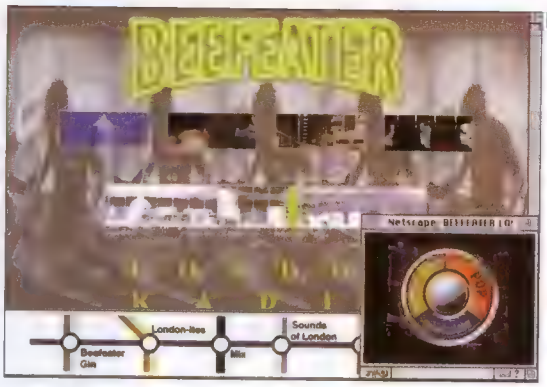


First talk radio, then shock radio, now gin radio – what will they think of next?

Beefeater gave Web design firm CHB*i* the unenviable task of making gin sexy.

What do you do to make gin sound sexy? Mother's ruin just doesn't have the kudos of a vodka Martini, or even Hooch. That's the problem facing Beefeater, London-based brewers of gin – how do you make gin fashionable?

You play on the fact that the drink is made in London, that's what you do. You may not have noticed – I know I didn't – but London is currently the world's hippest city, and Beefeater wants to ride on that wave with its site, touting Beefeater gin as the 'stimulating spirit of London'.

CHB*i*, the Web-design company behind sites from Carlsberg, DirectLine and RAC, was charged with the task of dragging Beefeater into the 20th century. Mark Curtis, director of CHB*i*, said: "We could have done the same old cocktail database that you find on so many alcohol sites, but we feared visitors would never return to a site like that."

In the event, CHB*i* built the site around the concept of Beefeater London Radio. It's not your Radio 1-type broadcasting; instead, it has three channels, each carrying three hours of music. The channels split into drum 'n' bass (allegedly London's only indigenous music since punk), pop and house.

The site uses Shockwave to handle the music, which plays in the background no matter what site you're visiting, as long as your browser is open. In fact, Shockwave is used extensively throughout the site. "It means visitors will only have to download one plug-in," comments Mark.

Each section of the site looks different – and that's deliberate. But the overall look is modern and will appeal to the target 20-to-35 age group. It has gig listings, tales from Londoners (the one from a shopaholic was a special favourite), a dictionary of cockney slang and, tucked away unobtrusively, the history of Beefeater gin – and the cocktail database. The site was developed by a core team of seven, plus a copywriter and a photographer, with help from DJs for the music; it took about two months to complete.

The site is being promoted mainly through PR, initially, and of course the usual site registration routines. Mark went on to say, "We're also looking at partnerships with other major London or music related sites."

If you want folks to visit your site more than once, you have to change the content regularly, and CHB*i* is in charge of the updating. The music will be updated every month, as will much of the content. Daily competitions and a threaded discussion area (which automatically translates words into London slang) will also keep people coming back.

Gail Robinson

www.beefeatergin.co.uk

Design	★★★★☆
Technology	★★★★☆
Navigation	★★★☆☆

MULTIMEDIA MAPPING

London Road Map

A great resource for anyone in need of a map – for anywhere in the UK.

With the promise of 'helping you find a way out of cyberspace' and demanding only your name and email address in return, the Multi Media Mapping site has a hell of a lot to offer as a free resource.

Once you've logged onto the site, you can happily trip around London and the rest of the UK, picking out your favourite places. In a more practical vein, you can find the street you need, or the fastest route home.

Multi Media Mapping is targeting the PDA market as frequent users of the site. Currently, Nokia 9000, Apple MessagePad and Microsoft CE-based PDAs can access the site and download a map or location. The server recognises how the visitor is accessing the site and tailors the content accordingly.

For example, an Apple MessagePad user will get a text-based service until they request a map; they'll then receive a greyscale version of the two-pass colour map a desktop browser normally sees.

Though the site is likely to prove very popular, Sean Phelan, managing director of Multi Media Mapping, happily admits that the site is a storefront for the company to license its services to other businesses. "We are looking to provide mapping services to content developers and Web design houses," he says.

He bases this approach on the increasingly popular assumption that future demand will require more and more localised content for sites.

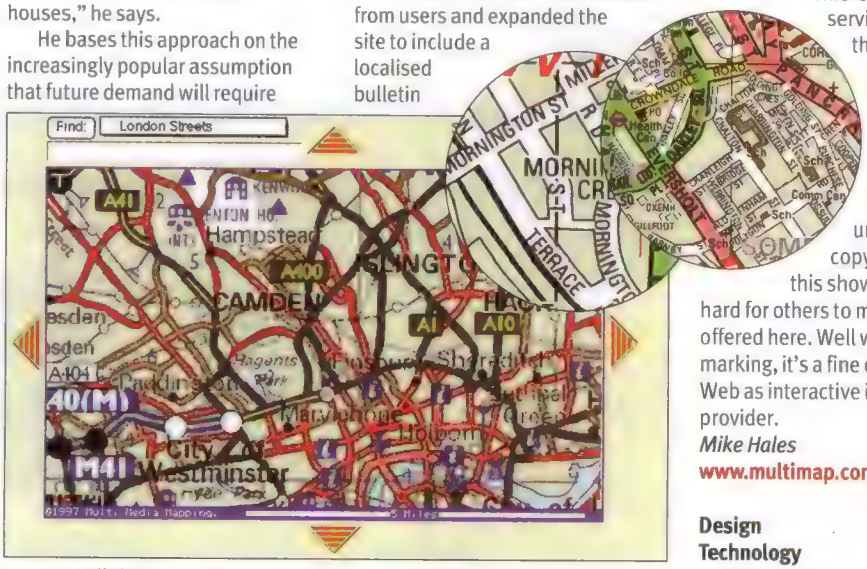
Phelan explained that he put two and two together when, as an avid sailor, he saw the potential for using GPS technology combined with the distribution power of the then emerging Web. He started the company in November 1995 and by the middle of this year hopes to have answered a common demand from users and expanded the site to include a localised bulletin board system, thus building a community around the service.

Though a design company was involved in the early stages, both the site and core technologies were developed in-house. The service is run from a Sun Netra server and JavaScript has been used extensively, though Phelan says they will, in time, move to straight Java.

This is one of the first services of its kind in the UK, which is in part due to the fact that much of the cartographical information in the UK falls under crown copyright. But, on this showing, it will be hard for others to match the service offered here. Well worth bookmarking, it's a fine example of the Web as interactive information provider.

Mike Hales

www.multimap.com/



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Design	★★★☆☆
Technology	★★★★★
Navigation	★★★★★

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FOOD AND DRINK

Carlsberg

Quick to realise the power of a global name, Carlsberg is busy branding on the Web.

There's nothing worse than brochureware and shovelware on a Web site. It's a simple mistake to make, but placing existing content onto a Web site is about as interesting as last year's browser reviews. To get around this problem, many companies try to come up with a gimmick to make their site a cut above the rest.

It'd be hard to accuse Carlsberg of blatant gimmickry, but when your product is disposable disco liquid, you can't pump it online. Carlsberg and its agency of choice, CHBi, have come up with a site as colourful and active as possible. Using primary colours to separate its frame-laden content, the site does resemble the Channel 5 logo, and uses the Carlsberg brand logo relentlessly.

Indeed, one has to remember that the site's raison d'être is promotion of the brand. The site contains a postcard archive where you can select an image, all customised with the logo of course, before sending it via email. This area even lets you select the time and date that the image will be sent.

The What's Brewing section gives details on forthcoming events sponsored by Carlsberg, such as the Pub Cup and the Carlsberg concerts at Wembley. As every good site should, this one takes existing content and repackages it. For instance, it uses the extensive Liverpool FC archive within its own frame controlled browser.

Nevertheless, the head-scratching in the Carlsberg office is plain to see. There are only so many ways to promote and brand an image, and postcards, sponsored football clubs and concerts are about the limit. The 'Probably...' section is hangover-inducing, with the 'Ten Reasons to Have a Pint' section the worst part of all. The answers, such as 'having an

22 million beer cans and 10 million beer mats can't be wrong

embarrassing surname' and 'not going bald' smack of desperation, as both company and agency search for that elusive wackiness that all lager drinkers surely yearn for. Similarly, the Your Shout section tries to provoke discussions, but this policy has been seen to fail on many occasions already.

Content aside, the site is above reproach when it comes to design. Making ample use of Shockwave, the site is cleanly designed using a few bright colours for added impact. The embedded frames may not be to everyone's tastes, but they do reinforce the brand's image.

By no means a bad effort, the site is set for continuous revamps over the next year. Carlsberg will be quick to promote it, placing the URL on 22 million beer cans and 10 million beer mats in the near future.

The best interactive Web site by a lager maker to use frames and have its own mail system yet to be developed in 1997.

Probably.

Mike Bracken

www.carlsberg.com

Design	★★★★
Technology	★★★★
Navigation	★★★★

TELECOMS

Totaltele.com

Take two magazines, one Web site and a global market, and see how the browsers handle it.

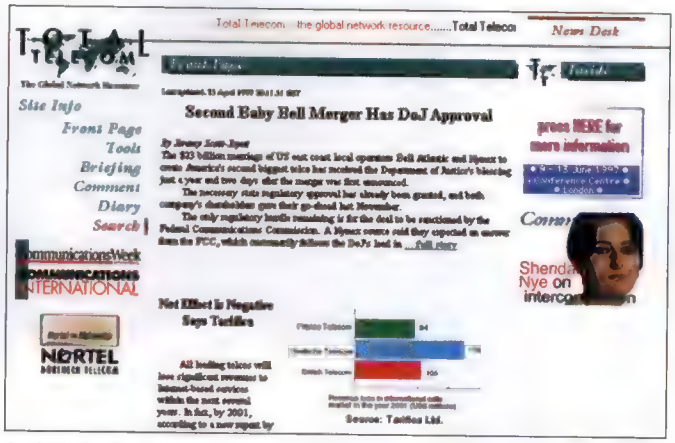
The first thing to say is that Totaltele.com is owned by the publishers of this magazine. It's also a tremendous idea the execution of which has been hindered by the never-ending standards war on the Internet.

The premise behind the site is deceptively simple. Telecommunications is a global market, and most of the readers of telecoms titles are online, so ship out rolling news and tailored content to this market across the very data network, the Internet, that is causing the telecoms operators so many problems. The reality is a bit more complicated than that.

Firstly, as the site depends on rolling news, it needed to be carefully branded, as the Internet tends to take news feeds and re-write them into other news feeds as soon as news happens. Totaltele.com manages to do this by using embedded frames. The screen is split into four areas: the Front Page, the left-hand menu and two links, a rolling news ticker at the top and a right-hand 'inside' section containing analysis and features. The content, as one would expect from the makers of *Communications Week* and *Communications International*, is of the highest quality.

However, it's the design that has been troublesome. With Microsoft and Netscape using increasingly divergent standards, choosing to write to a set browser is difficult, and it shows. Using Communicator (Navigator 4), the site uses background colours to highlight the heading under the cursor at anytime, but you can't see this feature when using Internet Explorer 3.0. Similarly, Netscape browsers provoke many more JavaScript errors.

Navigation is simple. The only thing that changes when a new icon is clicked is the main area; the top bar and sidebars remain constant,



Designing for two browsers means double trouble

which helps provide a familiar look and feel to all content areas. Nevertheless, the use of single-word links next to the news text can be confusing, as it's sometimes unclear whether you're navigating around an existing page or calling up another.

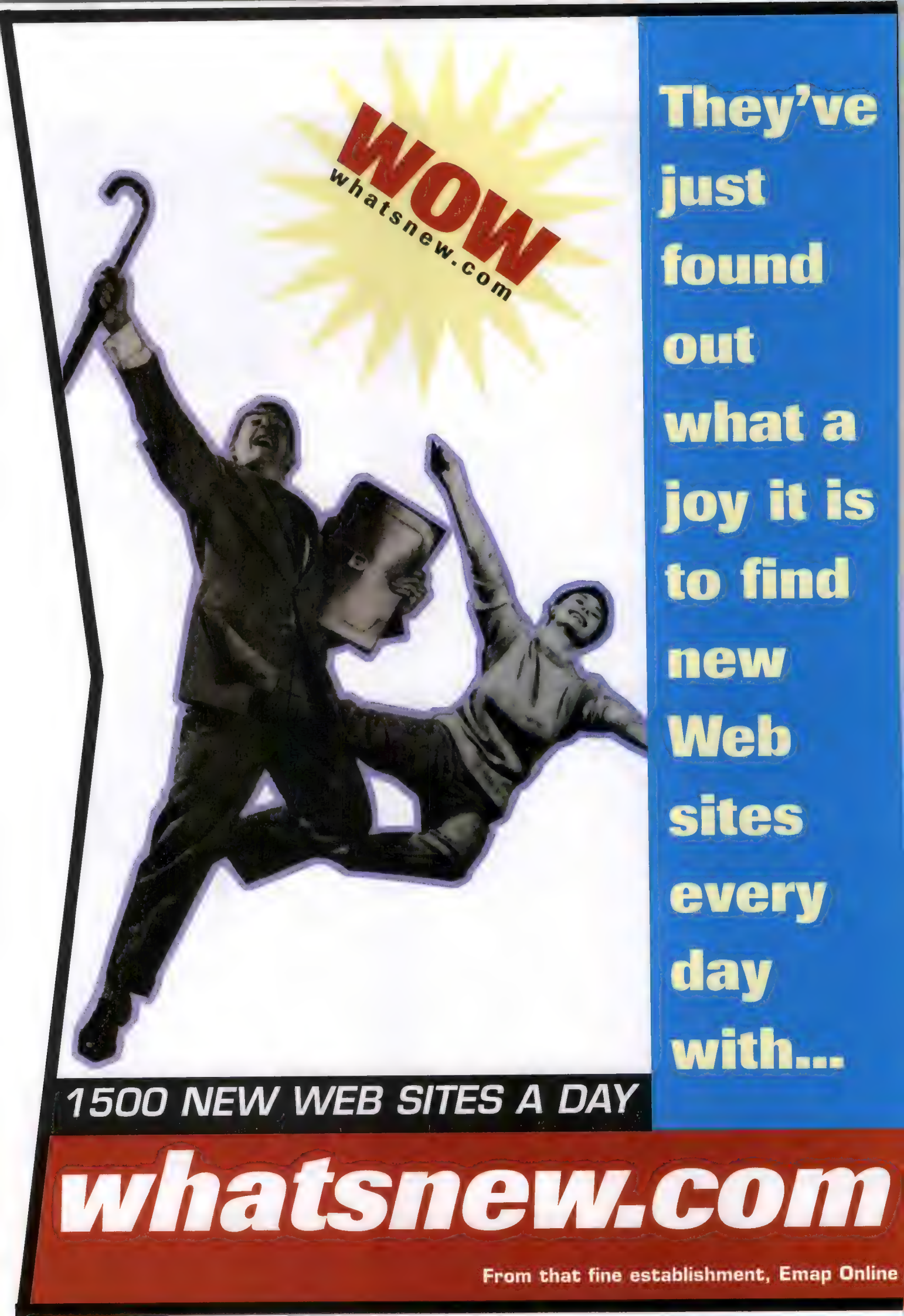
The technology used is far from advanced, because this is a content-led site. However, with the whole thing held together with JavaScript, the evolving browser battles will need to be watched to ensure that the content in its present form remains readily accessible to all. If current standards battles continue, it's easy to see Totaltele.com being developed for one browser, not both.

With a dependence on advertising for revenues the site, designed in combination with Webmedia, will become a prime target for push clients, making it imperative to embed advertising in the content. Similarly, a stronger brand icon may be needed for global recognition, as the text on the world image map is far too generic.

Mike Bracken

www.totaltele.com

Design	★★★
Technology	★★★
Navigation	★★★★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FINANCIAL

netPEP

netPEP shows how products can be sold online, and much cheaper at that

If time is money and you've got half an hour to spare, netPEP is online to have a financial chat. Not only is it offering the first personal equity plan, or PEP, to be designed specifically for and sold via the Internet, but net PEP believes it's the first time any product has been cheaper and better as a direct result. As David Cardale, MD of netPEP, boasts, "It's quite difficult to think of a time when people on the Internet have had an advantage – price-wise – over non-users."

Normally, tax relief on PEPs can be gobbled up by administrative costs and the commission charged by the fund's manager. Particularly when actively managed funds under-perform, these charges have been queried. Passive-tracking PEPs invest by following certain indexes, like the FTSE100 or All Share, rather than paying high-flying City investors to follow the market. They consistently perform well but still have telesales, marketing and processing costs which must be covered by an annual charge. This can leave the investor marginally worse off than if they'd paid tax on his assets. The netPEP avoids these costs: it uses the passive tracking method and completely dispenses with application forms and conventional marketing.

Instead netPEP advertises via the Net, supplies the necessary financial information through its Web site and allows potential investors to apply online. At the site you print off a page, which you sign and send to them with a cheque. "I was quite sceptical as to whether people would invest over the Internet," admits Bob Bentley from Wired Multi Media, design consultant on the project, "but it seems to be working." David Cardale cautiously agrees: "Working on a long-term basis we are ahead of budget – and pleasantly surprised."

You fills in your form, you signs your cheque and you sends it in – by snail mail

This consumer confidence may be due to the site's simple design and functionality. Matthew Hare of Oxford Community Internet, who designed the site, felt that speed and a feeling of reassurance were a priority. "We didn't want people to be put off by flashiness, and we didn't use Java or JavaScript because they're poorly supported by AOL and CompuServe." As a result each page is really quick to download and looks as stiff as a company prospectus.

All this adds to the no-frills, no-extra-charges feel of the product; "plain Vanilla," says Cardale. The biggest bonus is that using the Net cuts down pen-pushing costs, and these savings are passed directly to the consumer. And if that's not a good pep talk, I don't know what is.

Katherine Harvey

www.netpep.co.uk

Design ★★★
Technology ★
Navigation ★★★★

TELEVISION

World in Action

The World in Action Web site tempers activism with a little humour

Granada's *World in Action* trophy cabinet must be full to bursting point. In its 34 years it has conducted investigations into BSE, the Birmingham Six and nasty nightclub bouncers, all of which have won prestigious awards. Will the quality of its Web site match up?

At first glance this site looks like little more than an excuse for mutual back-slapping; yet, true to its journalistic history, the site hopes to become a major extension of the current affairs series' public service and education role.

World in Action producer-cum-site-designer Katriona Lewis explains the site was born out of a sense of frustration. "We collect so much material for the programmes, yet we only have a half hour slot. With this site we hope to pass on information and basic advice which we can't fit into the show, as well as give updates on past campaigns."

It seems that the *World in Action* team simply had more material than it knew what to do with. "Television is a transient medium," says Lewis. "People are always phoning up and asking us to send them tapes of programmes that they've missed, and this is very costly. Now we can say, 'Go to your local library or cybercafé and you can look the information up yourself!' "

It hasn't all been plain sailing, though, and the site has had its share of teething trouble. Originally it was produced by Macclesfield-based Web design firm Arthouse, but Lewis felt complete control needed to be retained within the *World in Action* offices. "We're often involved in legal disputes and I have to be able to remove information or alter it at short notice. Now I can use Microsoft FrontPage 97, which gives me the speed and flexibility I need," she says. This means that the site is updated every Monday before the night's show.

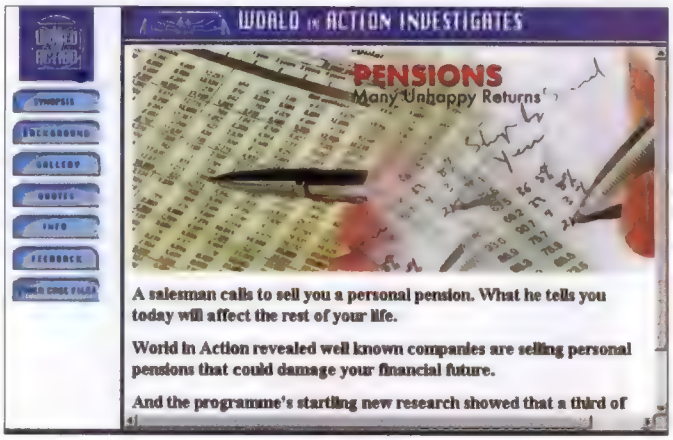
The site suffers from poor backing from bosses at ITV. Currently ITV is refusing to allow the Web address to be broadcast at the end of the programme. The management seems to be paranoid that viewers may be tempted to the Web site and, in their enthusiasm, forget to tune into the programme.

The lack of publicity is a shame, because the site contains a wealth of useful information and contacts. From air bags to breast implants, the site is simple to navigate, using the ever-present frames. It's not too heavy to read, either, as the text is broken up with nifty line-in pictures taken from the programme. Real Video is planned for the future, so maybe bosses at ITV are right to be concerned. There are currently case files on 14 programmes, and a new one is added every Monday the show is on air.

The site also has its lighter side. On one page it appeals for whistle-blowers to get in contact. On another it tells how censors defined the genitals of the naked man in the *World in Action* logo as "too big" and ordered them to be shrunk – despite the fact that the drawing was based on Leonardo Da Vinci's drawing entitled 'The Proportions of Man'!

Steve Hill

www.world-in-action.co.uk/

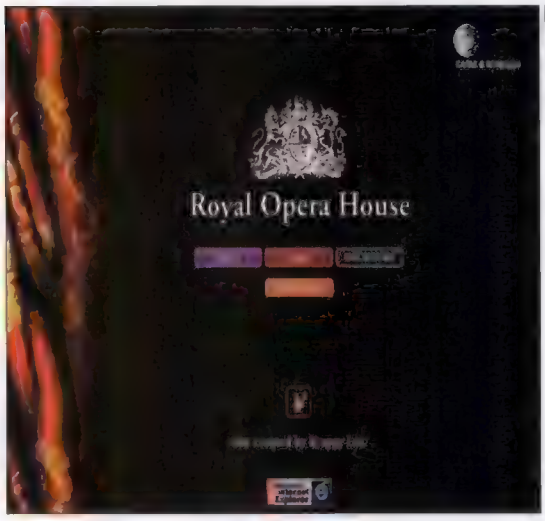


Case studies go up on the site as the television show airs

Design ★★★★
Technology ★★★
Navigation ★★★★

CULTURE

Royal Opera



The proverbial all-singing, all-dancing Web site

The Royal Opera House site is stylish and dramatic – just like an opera.

Opera is a truly multimedia art form, so you'd have thought it would be ideal for the Internet, yet so far opera Web sites have been decidedly underwhelming.

Enter stage left (with a swish of curtains) the Royal Opera House, Covent Garden. The ROH site, currently in beta, covers the Royal Opera, the Royal Ballet and the Orchestra, and its designers are shy of letting the public in on the act – a shame, as (like an opera) it's sumptuously designed and manages to remain simultaneously attractive, easy to follow and rich in content.

The ROH wanted, says IT head Peter Morris: "To be seen as the most authoritative opera site in the world," but also to be accessible, in line with its overall policy. "The site isn't an aim in itself, but a means to achieving our access policy."

Web designers, Syzygy ,responded with a stylish design, which is so easily navigable that it takes time to realise quite how much is there – about 700 pages, in fact, managed by a system of databases. These range from programme contents and news to a rich history of the ROH in Covent Garden.

Syzygy has designed its motif dramatically around the plunging line of the Royal Opera House curtain. The pages are easy to read, with a pleasingly short line width, and a wealth of fairly fast-loading images from the Opera House archives.

The first phase cost £116,000 and was sponsored by Cable and Wireless, which itself has a strong educational policy and was keen that the site should have a high educational content. Indeed, over half the pages are educational, and include backstage information, lives of the artists, the Royal Opera's 'Write an Opera' scheme, and forums where students can chat, or send questions to the stars.

The site is still being perfected. You can't yet order tickets, CDs or memorabilia online – this will come later in the year, with a sophisticated system to link seating plans to individual performances. At the moment you can download the latest QuickTime VRML plug-in to see the latest plans for the Floral Hall – only to get a Virtual Reality tour of, what looks like, a big shed.

And it's all so quiet! No Tchaikovsky to download, no RealAudio streamed arias in the background....These too, I'm told, are scheduled for later. Future plans also include special events to fit with radio and TV broadcasts, and an animated screensaver showing scenes from opera and ballet.

All in all, if the next phases are anything like as good as this, the ROH site will truly be something to sing about.

Charlie Harris

www.royalopera.org

Design	★★★★★
Technology	★★★
Navigation	★★★★★

FOOD AND DRINK

Kellogg's

Cereals purveying giant Kellogg's has localised its Web content to get it out of the kitchen and into your office.

If Kellogg's had set about producing a site extolling the virtues of its 26 breakfast cereals, it would have been a pretty lame affair. There's only so much you can do with sugar-frosted flakes of corn. Instead Kellogg's has positioned itself as a source of family health, vitality and, information that, like its cereals, comes in wholesome nibbles.

"The Kellogg's brief was produced over about six months in combination with Leo Burnett's interactive team and Kellogg's," recalls Tim Dungar, managing director of Web design firm, Netsite Productions. "It called for a Kellogg's UK Internet presence that had a mixture of nutritional information, entertainment, and a breakfast-time news service."

The site, designed to be accessible by as many users as possible, was optimised for Netscape Navigator 2.0 and above. "It runs on a NetSitePro SPARC server with a direct backbone network connection, based at the Telehouse Communications Centre in London," explains Dungar, "so download speeds shouldn't be a problem. Graphically, it makes use of standard animation techniques, while most of the interactive elements are based on crafty CGI scripts."

The place at the head of this breakfast site has been reserved for Kellogg's Better Breakfast Briefing, a free news service provide by the Press Association (PA) that can be tailored to specific needs. If you subscribe to the whole service you'll be deluged with information, but a preference selection gives you a more streamlined version.

For those more concerned with fibre and calorific control, Kellogg's offers a Nutritional Information section. It has a comprehensive FAQ, updated regularly, and a dedicated team of nutritionists on standby to answer questions.

Cyberfun is where you'll find the animated graphics, the Shockwave games and the kids. Adopting a similar stance to the host of Disney sites, this is interactive entertainment that adds what Dungar sees as "extra functionality."

The promotional area currently features Kellogg's latest product, Strike, which enjoys links with the Premier League. In the Q&A section, you can demonstrate your Stato-like knowledge of the game and propel yourself up the Kellogg's league. Or you can become a sports reporter for the site and win a day out with *Shoot* magazine.

And so to Mrs K and her family. Their only function seems to be to obsess over their favourite cereals. Mrs K's son-in-law's fondness for Coco Pops is clearly a cause for some concern.

Paul Bennett

www.kelloggs.co.uk

Obsessing over fibre was never so simple

Design	★★★★★
Technology	★★★★
Navigation	★★★★★

MOTORING

Top Gear

The BBC appear to have it sussed. Create a successful television programme, produce an accompanying magazine and then combine your previous ventures to knock up a Web site.

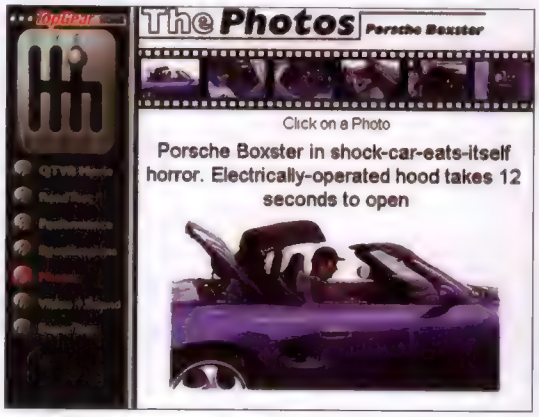
It seems simple enough, but this site succeeds where other ezines have failed because it doesn't attempt to shove its broadcast or print strategy online. Established as a mainstay in the BBC2 schedule, a potential hit rate in the millions and using household names Jeremy Clarkson and Quentin Wilson, the site will appeal to the petrol-head and motor connoisseur alike.

Dave Calderwood, *Top Gear* producer, is well aware of its high-profile image. "In the first few weeks after the launch the site was registering around 300,000 hits a week, but a promo trailer after the *Top Gear* television programme, the build-up to a Grand Prix and some additional content has seen that figure go up."

And it will need to continue as it finds itself competing with a glut of motoring sites offering car prices, specs and side-by-side comparisons. Car Prices **(www.carprices.co.uk/)**, Car Lounge **(www.carlounge.com/)**, former site-of-the-month New Car Net **(www.new-car-net.co.uk)** and the forthcoming Auto Guide **(www.autoguide.co.uk/)** all offer similar fare to Quentin Wilson's Car Chooser.

The site is positioned as an average Joe's motorist guide, but by using Moneywise – a software programme embedded in a Java applet – shrewd Mr Wilson has endorsed something that might just prove to be the site's trump card. Enter the car's purchase price, the deposit or trade-in value of your current car and the applet calculates the size of the loan required. If you enter the APR rate of interest and the number of months over which you want to repay the loan, it can even calculate your monthly repayment figure. The site boasts a database of more than 4,000 new and used cars – pretty impressive, though price listing for a secondhand run-a-round, as *Top Gear* readily admits, can be pretty arbitrary. You could well spot a bargain on a garage forecourt, but it's still up to you to decide if this dream car is to die for or to die in.

The rest of the site is split into a chummy news section with headlines like 'Frentzy wins battle with Schuey', a £10 Fantasy Grand Prix League and a current profile of the svelte Porsche Boxer. QuickTime VR movies extol the virtues of this machine, and you can shift through the



Take the svelte Porsche Boxer for a spin using QuickTime VR

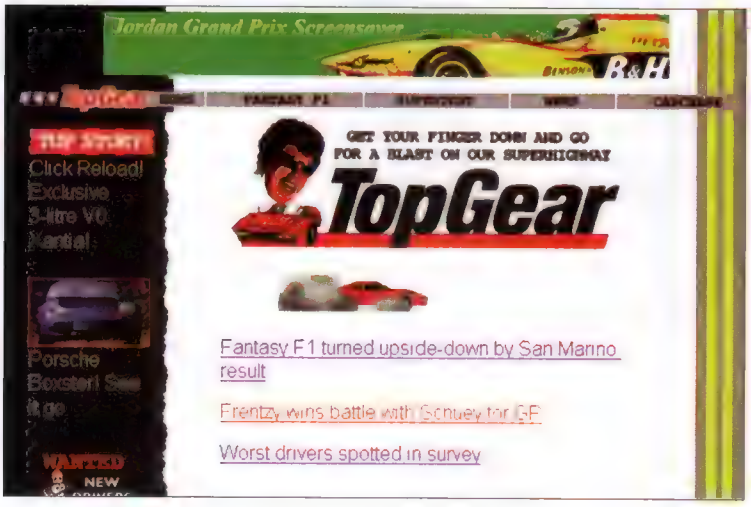
manual gearbox. "The Super Test will be updated every month and we hope to be using the new QTVR Version 2, so you will then be able to do things like click on the bonnet and it will open for you," explains Calderwood.

Drop the clutch and move into high gears for photos, sound and a 30-second video commercial, or blow the gearbox completely by crunching into reverse.

Paul Bennett

www.topgear.com

Design	★★★★
Technology	★★★★
Navigation	★★★★



A site to appeal equally to the petrol-head and the motor connoisseur

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your domain is your...

business

prosperity

future

register your company name as an Internet name *now*... before someone else does!

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Interactivity gets even easier

Adding interactive applications and controls to Web sites is becoming ever easier using ActiveX controls.

For any but the most basic Web site, the addition of interactive features – be they audio, video or animations – is quickly becoming de rigeur. One of the increasingly common ways to add these bells and whistles is to use ActiveX controls, especially now Microsoft is allowing developers to access these controls from within the many components of its Visual Studio 97 developers suite.

For the visitor to the site it's not always obvious that ActiveX controls are being used and that's how it should be. The overall effect is more important than the underlying technology. Nevertheless, many sites are now actively using these controls.

The Mini site at **www.mini.co.uk** uses a heap of ActiveX controls both within its navigation bar and as full applications. For example, it uses ActiveX controls to replace animated GIFs to create its interactive navigation menu. The full applets, especially the one that allows users to design their own mini cars, are exceptional.

Although a lot more time than usual has to be spent downloading the control, the fact that it doesn't rely on server-side controls every time you make a design change saves time, and makes it possible to work within the browser. When you click 'done', it sends the variables back to the server, not the full bitmap, and this merely recreates your image.

Another site which uses a similar control is London Broadcast Radio. The LBC site at **www.lbc.co.uk** allows you to call up third-party content, such as the AA RoadWatch news, directly within an ActiveX application. Although most visitors will have no idea that it's an ActiveX application, its ability to provide real-time breaking news within the browser proves it's worth to designers and developers.

Amazing variety

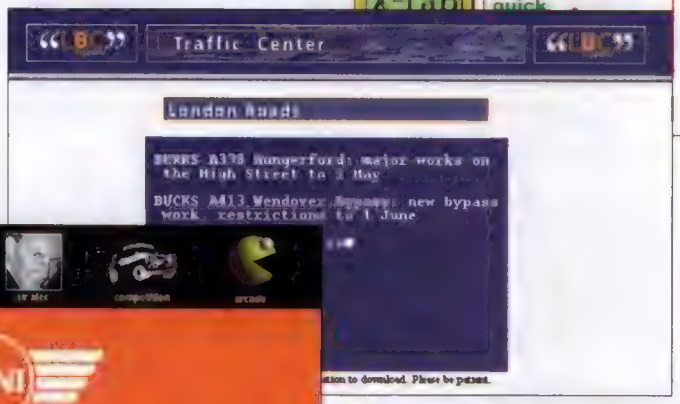
Casting the net further afield, ActiveX controls can be used in a surprising number of ways.

Holiday.net uses a Genie ActiveX control that, when downloaded, allows visitors to work their way around the site using voice commands. Although it's a 5Mb download, these smart features can transform a Web site into a two-way interactive ordering service using existing Microsoft Visual Basic programming and distinct ActiveX controls.

Downloadable controls

For a more comprehensive selection of ActiveX controls, check out the unsurprisingly titled **www.activex.com**. Backed by the Computer Network, this site is the biggest repository of ActiveX controls and samples currently online. No matter what your technical expertise, you'll find there are primers and background information galore.

The biggest online repository of ActiveX controls.



The Mini site has made an interactive navigation bar using ActiveX.

On the LBC site you can call up third-party content – AA RoadWatch.

You can navigate Holiday.net using voice commands.

Holiday-specific ActiveX controls available here!

Unsurprisingly, though, Microsoft is not far behind, as it has a vested interest in promoting ActiveX. As such it's collated over 100 ActiveX controls from a variety of vendors including Adobe, Farallon and DimensionX. These controls range from the simple, such as the Shape 3D control from ProtoDevelopment, to fully fledged applications like Carbon Copy from Microcom.

Finally, as with many new technologies, it's the most flippant uses that catch the eye. Click your way to **www.intercall.com/~goya** and download Valentine's Day, Halloween and Christmas ActiveX controls to jazz up your site.

For Britain's new media sales house click here.

http://www.internet-sales.com

One mouse click, or just a single phone call will take you to **Emap Internet Sales,** the new media sales house with the people, the pedigree and the professionalism to guide you through the process of planning and buying an Internet advertising campaign. We'll use our unique experience in the medium to help you find out all you need to know about what you need to know about deploying the Internet to the maximum effect.

Click today. Or call Paul Cook (paulc@internet-sales.com) on 0171 208 4155.

www.internet-sales.com

Update: Top sites revisited

There's nothing worse than returning to a Web site to find the content hasn't been updated for months. We visit some of the top sites to find out just how well the Web is being maintained.

Award Winners

The Spice Girls, Capital FM and the Perfecto label emerged victorious from The Music Week CADS (Creative and Design Awards), taking the honours in the New Media section. The official Spice Girls Web site, designed by Adam Townley at Virgin Records, beat the Pulp and Everything But The Girl sites in the Best Artist Web Site category with 2.5 million hits per week.

http://channel3.vmg.co.uk/spicegirls/

In the Web Site Design category, The Perfecto site, designed by David Loosemore at AMX Digital, took the honours.
www.perfecto.co.uk

Best music-related site went to that old fave Capital FM.
www.capitalfm.co.uk

In this month's spicy issue, the dot-music readers' award went to Gary Fenton for his Spice Girls fans site, The Spice Shack.
http://spicegirls.ukonline.co.uk/index.htm

Time Out's site has been stripped of some its pictures and graphics and given a new coat of text-based emulsion. This has made it quicker and easier to navigate. The weekly updates, arts and entertainment listings are all still here, and you can now get the lowdown on where to go in 21 cities.

www.timeout.co.uk

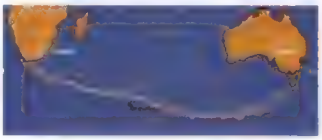
Netcom is to host the new Fiat and Alfa Romeo UK Web sites, designed by Middlesex-based consultancy

Dialogue Interactive. The hottest feature of the Fiat site is a 360° viewer, Surround Video Control, by Black Diamond Consulting. Use it to view the inside of the latest Fiat Coupé and Brava models. What's more, the friendly local Fiat dealer finder searches by postcode.

www.fiat.co.uk
www.alfaromeo.co.uk

Club 18-30 holidays gave Web developers Subnet a free reign to develop its Summer 97 site. The agency obliged by incorporating navigation bars and some nifty animated buttons. The breast-expanding screensaver is now available, reinforcing the widely held view that Club 18-30 is little more than a shag fest.
www.club18-30.co.uk

BT's annual Global Challenge is well underway and you can now monitor just how far the crews still have to go in their gruelling around-the-world race. The younger club members have the opportunity for live chat and interviews with crew members, and the chance to view a simulated international rescue at sea. And, shiver me timbers, the site features an online glossary of terms.



www.btchallenge.com

Travel Inn, the Whitbread owned-hotel chain, has over 160 hotels, so there's a good chance that one will be on your business' doorstep. A postcode search takes care of the details, and AA maps indicate the distance to the hostelries and its exact location. A central reservation service seemed like a good idea right up to the point you realise you had to do it by phone.
www.travelinn.co.uk

Calamity Comics has come up with a graphic, interactive, online experience that provides a fast mail-order service and tells comic fanatics about the latest developments in the world of contemporary and vintage comics.
www.calamitycomics.com/

Nationwide First Division Champions Bolton Wanderers can boast another first with a fantastic revolving turnstile on their site. Birse Construction and the Chartered Institute of Building have set up a NetCam site at the Bolton Wanderers football club, where you can watch the new stadium being built.
http://webwright.n-e-t.co.uk/~birse/

City legal firm Macfarlanes has unveiled a site which provides information on legal services. It also offers a rather idiosyncratic maternity leave calculator. Enter the expected week of birth and the calculator checks the eligibility for statutory maternity pay, maternity leave and Extended Maternity Absence. Plan your child to maximise your benefits.
www.macfarlanes.com

Beer Necessities, Scotland's only U-brew Centre, lets you brew your own for around 75p a pint. Just over 900 pints later you could have built this site, designed for a meagre £700.
www.users.zetnet.co.uk/ubrew/

The vomit-inducing psychedelic backdrops in the Alton Towers site are not recommended for the faint-hearted, or for those intending to ride Nemesis. But the site caters for the whole family. The site even provides, in association with Manchester University, an educational area which gives some scientific insight into the theme-park rides.
www.alton-towers.co.uk

Ironically, Peter Rabbit has himself gone online. This animated site will move even the most hardened poachers to vegetarianism. Catch all of Beatrix Potter's delightful characters at

www.peterrabbit.co.uk.

Why did they do that?

Chris Grant, Sales & Marketing Co-ordinator of Mecmesin, has developed an absolute gem. Basically it's a commercial site dealing with force and torque measurement, but it also has a test system that evaluates how much force it takes to rip the eyes out of teddy bears – just another useful application of Internet technology.

www.mecmesin.com

We will be hard pressed to find anything as remotely pointless as this site ever again. Welcome to 'dot of the month', entrant one.
www.lethargy.demon.co.uk/

Oh, pure and unadulterated joy.

Those folks at Urban 75 have excelled themselves and created the most relevant, innovative site of the nineties. Spice Slap is a shocking, Shocked game that is simultaneously addictive, compelling and pointless. Why did they do it? Because they can. Email me if you can beat *Internet Magazine's* top score of 116.
http://194.112.40.4/Urban75/spicebelt.html

Enter your name in the C.R.A.P box and you're sworn into the movement of Citizens Rebellion Against Pringles, a non-violent organisation dedicated to ceasing the production and sale of those crispy and deadly-addictive tubes. Catch up on the news story that shook dehydrated-potato-snack manufactures worldwide, and bookmark links to more disturbing sites where you can learn about aspects of sandwich spreadism.
http://members.aol.com/justincrap/pringle/index.htm

Expert Help

Reader's questions are answered by our panel of experts. Send your query to faq@internet.emap.com

Steve Andrews, from Web design company SmartNet (the company behind sites for Vogue, Christies and Classic FM) answers this month's Web design queries.

Roger Gann has been a freelance computer journalist for the past eight years and specialises in the technical side of the Internet from a user's perspective.

Gail Robinson is the editor of *Internet Magazine* and prior to that worked at *What Personal Computer* magazine. She answers those questions that nobody else wants to sort out.

Mike Hales is the managing editor of *Internet Magazine* and he loves his Mac with a passion that is really not healthy. Readers should address their Apple problems to him.

Mike Bracken is *Internet Magazine's* deputy editor and has been involved in Internet research for nine years. He'll be answering any questions you have on products and new Internet developments.

Storing passwords

Q Are there any offline browsers that can store user/password information so I can browse password protected areas of sites?

Duncan Drasdo
dunc.ao113376@infotrade.co.uk

A Gail Robinson replies: Yes, most offline browsers will store passwords for protected sites. We recommend WebWhacker 3.0, which comes in Windows 3.1, 95 and Mac versions. The product is made by ForeFront, download an evaluation version from www.ffg.com

Not only will WebWhacker store all your password details, it also allows you to schedule the downloading of sites, search for specific text across your 'whacked' sites and group your sites by topic.

There's also a nifty bit of freeware called Password Keeper that works with browsers, rather than offline browsers. The program saves and retrieves passwords, registration names and numbers. It's a small download from www.ior.com/~bharley/files/keeper.zip.

How can I resell domain names?

Q My service provider persuaded me that it would be a good business to sell domain names from my Web site (specifically designed for small/medium-size businesses in the Sutton Coldfield area). As a result, I bought three names and have a joint share in another. These cost me £150 each. I was told I'd have no trouble reselling them, but I'm having real problems. I've found brokers in the States that auction .com names, but still have to find one that sells .co.uk. Can you help?

Jackie Butler

A Gail Robinson replies: We spoke to Nominet UK, the national registry for all domain names ending in .co.uk, about reselling domain names. They commented that it's legal to register domain names on a first-come, first-served basis, but all applicants to Nominet have to warrant that they have the right to the domain name.

This indemnifies Nominet against any claims that the registration of the domain name infringes the rights of any third party. The applicant also agrees to reimburse Nominet reasonable costs and expenses incurred in defending such a claim. So if you've registered a domain name that another company might have a claim on, you *could* get yourself into legal hot water, and you could be served a mandatory order to give up the name. What's more, the process of transferring a domain name to another person can be longwinded. Brokering domain names is not a get-rich-quick scheme.

Rules for name requests in the UK Namespace

The rules for name requests in the UK namespace are presented. They will apply from 1 August 1996 and were approved by the steering Committee of Nominet UK on 25 July 1996. They were originally extracted from the work of the [illegible] with additional text added to attempt to specify the liabilities on customers, ISPs and Nominet UK.

For the full details on registering .co.uk domain names, check out the Nominet Web site at www.nominet.org.uk

Tell me when I've got a hit

Q I've just started writing a page about fish-keeping. I'd like to add a script which sends me an email telling me I've got a new hit when someone goes to the site. Can I do this?

Ian Brown
ian.b@zetnet.co.uk

A Steve Andrews replies: We would advise caution on this

Top reader's tips win fabulous modems

In your last issue (29), I noticed a letter asking how to make Eudora Lite load up the dialer instead of having to go through Dial-up-Networking. I don't know how to do it, although I make a shortcut to my service provider on my desktop. Just go to Dial-up Networking, and drag the connection icon on to the desktop. Then whenever you want to connect, just give it the double click, and you're in!

Chris Dods
carat@cyberjunkie.com

Roger Gann replies: **Ah, the obvious ones are the best! Actually, you can automate this process even further, with your solution you still have to click on the Connect button. A little Windows 95 goodie, amusingly named RTVReco, can be configured to automatically click buttons for you. So, in this case you can tell it click the Connect button every time the Connect To window pops up. RTVReco can be found at the usual shareware sites but it's spiritual home is www.clearlight.com/~rtvsoft/**

course of action; what if the site is a roaring success and begins attracting major traffic? You'd be snowed under with email messages. Having said that, it's possible to have an email sent to you the instant you get a hit on your site. You'd use a PERL script with the Server Side Includes command. Alternatively, you could set up the homepage as a script in itself. Any good PERL scripting book will run you through the mechanics.

Address books in Navigator

I've got a big address book, which I originally created with Microsoft Exchange, and subsequently exported to the Internet Explorer mail client. My problem is I can't see any way of importing/exporting it to use with Navigator 3, or Communicator Message Centre.

Chris Holden
chrisOQUANTUM7.DEMON.CO.UK

Roger Gann replies: So far as I can tell, it's not possible. Netscape Communicator and Navigator both use an HTML-formatted address book and the only import option is for HTML files.

Needless to say, the Microsoft Personal Address Book (.PAB) files don't meet this criteria. Perversely, Internet Mail can import Navigator Address Books but can only export messages.

There's no end of shareware utilities designed to transfer bookmarks between the two browsers, but for email addresses I could find none. Do any of our readers have any suggestions?

How do I control my fonts?

I've recently revamped by Web site and have made extensive use of the Ad Lib font. It's just struck me that people without this font won't see the page as I'd intended it to look. Can I format the pages to ensure that viewers see the font I want and not their browsers' default font?

Adrian Wright
webmaster@enact.demon.co.uk

Steve Andrews replies: There are two solutions to this problem, the first being to create your text as a graphic image which is then treated as any other graphic. Alternatively, you can detail a list of fonts which the browser will then select, in order to display when accessing the site, depending on their availability on the browser machine. You could therefore have the Ad Lib font at the top of the list, followed by other fonts which are also acceptable to you from a design perspective but which might be more commonly available on the browser machine.

Help me view my reports

On my site, I do match reports, but when I put the pages on Netscape, the background image doesn't work, although it does in Internet Explorer. Any ideas? Below is the HTML, where I think the problem may lie:

```
<HTML>
<HEAD>
<TITLE>Rovers vs. West
Ham</TITLE>
</HEAD>
<BODY>
<HR>

<H1><CENTER><BODY
background="brushed_aluminu
m.gif" text="#00FF00"><IMG
src="brfc.gif"
alt="BRFC"><U>Rovers
v. West Ham <IMG
src="westham.gif"
alt="WHFC"></U></CENTER>
</H1>
<HR>
```

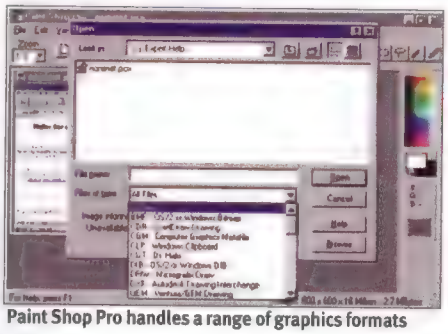
Secondly, some of my images have a border round them, I think because they're HREF links; is there any way I can cancel these but keep them as links?

Lastly, I've been given a floppy with some graphics I'd like to use. However, they're for the Mac. Is there any way I can import them (I use Paint Shop Pro), even though my system says the disk isn't formatted?

Shaun Clark
saclark@zen.co.uk

Steve Andrews replies: Two <body> tags is always going to confuse the browser. Simply take the content of the second <body> tag in your example, and place it in the first <body> tag. Then delete the second <body> tag. It should then work fine on all browsers.

Moving onto your borders, simply place Border=0 within the <image> tag.



Paint Shop Pro handles a range of graphics formats

You can open a Mac disk on the PC by using a program called TransMac (contact your local software supplier). You will be able to open the files in Paint Shop Pro as long as they're in a format recognised by the program.

Which HTML analysis tool?

I want a program that checks the syntax of HTML code. Can you help?

Orla Harrell
rvpec@wmin.ac.uk

Gail Robinson replies: HTML analysers come in two forms – HTML analysis services and HTML analysis programs. If you use a service you simply log onto their site, fill in the address of the pages you want analysing and click on submit. The analyser works its way through your code and then sends a report back to your browser. HTML programs work in a similar way but are stored locally. You feed in the index.HTML file name and click on the check button. HTML analysis services have the benefit of being platform-independent and can work out cheaper if you're only checking a few pages.

Of the HTML analysis services I'd recommend Doctor HTML. It's a thorough service; it checks all internal and external links and finds orphaned HTML tags. You pay by the number of pages you want analysed; 100 pages will cost around $50. Check out the site at www.imagiware.com.

Roger Gann says WinCIM can't send binary attachments from CompuServe to the Internet, but there is a very easy work around: X400. As long as the recipient's software supports X400 you can send and receive anything.

I have a client who still uses PROFS, which uses the Advantis gateway to the Internet. For the past three years we've been exchanging graphics files, Word documents, Excel spreadsheets and Powerpoint presentations using X400, with absolutely no trouble.

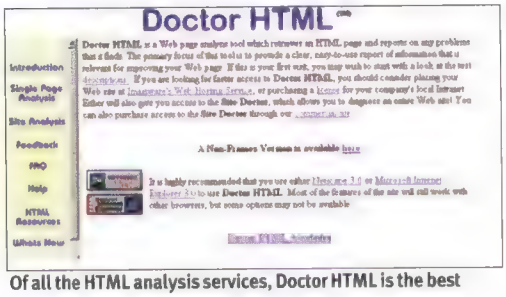
For the CompuServe user setting up an X400 address takes as long as it takes to type it. The basic elements are:
X400:(c=US;a=COMPUSERVE;p=CSMAIL;d=ID:your CompuServe ID)

I've no idea how many other systems still support X400. There used to be five but I've no idea whether they're alive or dead.

Mike Still
mike.still@dial.pipex.com

Thanks for those tips Chris and Mike. Both of you will walk away with 33.6Kbps fax modems from Electronic Frontier. The Electronic Frontier XL-336EV won a coveted *Internet Magazine* Best Buy award in March. The modem is well specified, offers excellent value for money and had no problems connecting at speeds of 33.6Kbps in our tests.

If you're after a full-blown HTML analysis package, check out



Of all the HTML analysis services, Doctor HTML is the best

SiteHog, which won the ***Internet Magazine*** Best Buy award in the April issue (29). This excellent program gives a graphical overview of the HTML page or site, a list of HTML files checked, their sizes and the number of errors. It also lists each HTML file with the errors highlighted in red and a description of each error underneath. A shareware version of the product is available at the Web site:
www.compulink.co.uk/ ~allied-display/redhog/index.html

Changing pictures

Somebody wants to give me money to update their Web page for them, but they want a different main picture displayed every time the main page is returned to again. This sounds like a great idea; thing is, I can't figure out how to do it. Any ideas?
Fergus

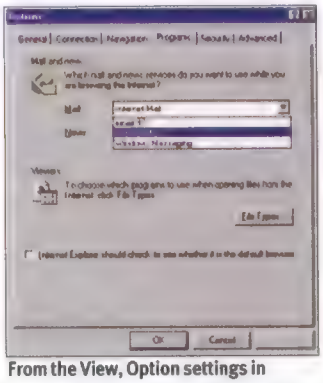
Steve Andrews replies: Using PERL script, the <image> tag calls the script which then displays an image randomly selected from a pre-determined list. For some great scripts, check out
www.worldwidemart.com or
www.elf.org/~erict/scripts

Help me with my Eudora settings

How can I set up Internet Explorer 3.01b to automatically run Eudora when I click on a Mailto: link on a Web page? At the moment it wants to start running Inbox.
Jason Reed
purge@zetnet.co.uk

Roger Gann replies: Eudora should automatically integrate with Internet Explorer. Eudora updates the Windows 95 Registry when it's installed and every time it runs, virtually ruling out the use of other mail clients!

To change the default mail client in Internet Explorer 3.0, which is normally either Internet Mail or Exchange/Windows Messaging, open Internet Explorer and from the View menu, select Options. Click the Programs tab and select the mail client you want, Eudora in this case, from the drop-down list in the Mail box in the Mail and News area. Click on the Apply button. This edits the URL:MailToProtocol handler listed when you click Options/Programs/File types on the View menu. To check this, click Edit, then Open and then Edit to see the command that controls what happens when Internet Explorer encounters a mailto: reference.


From the View, Option settings in Internet Explorer, you can change the mail client

The command line should look like:
`C:\<EudoraFolder>\EUDORA.EXE /m`
If Internet Mail is the default mail client, the command line would look like this:
`rundll32.exe C:\WINDOWS\SYSTEM\mailnews.dll,Mail_RunDLL`
while Windows Messaging changes the line to:
`rundll32.exe url.dll,MailToProtocolHandler %1`

Scheduling Explorer

Is it possible to set up Internet Explorer 3.02 to download email, news, and more importantly files, on a scheduled basis?
Iain Dods
imdods@liverpool.ac.uk

Roger Gann replies: Sadly, you can't easily use the System Agent scheduler included in the Windows 95 Plus! add-on because it doesn't support scripting or keystroke recording.

However, there's no shortage of automation programs for Windows 95. These programs aren't particularly Internet-oriented, but nevertheless they are perfect for the automated dial-up tasks you have in mind. One such is ClockMan95 v1.0, which you can download from
www.graphicaldynamics.com

To get the most from this package you'll have to wrap your brain around a scripting language. The latest version is cool – it can apply rules to your in-box to cleanse it automatically of spam mail.

Getting info from forms

How do I collect information from submitted forms?
Adam Cooper
net.king@virgin.net

Steve Andrews replies: You need to include some form of email script to send the content of the form as an email, for which you could check out the **www.worldwidemart.com site**
Alternatively, try including a mailto tag within the form code, as follows:
`<form action=mailto:stevea@smartnet.co.uk>`
inserting your email address of course. This should work in the majority of cases.

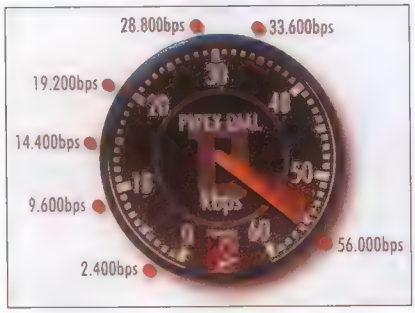
Sort out forms

I have a mail form set up on my site and, although I've manged to get the text to wrap within the box, when I receive the submitted form it appears as a single string of text. This means that when I print out the information it runs off the page. Can I get round this problem?
Peter Rooney
creative@designs.datanet.co.uk

Steve Andrews replies: You either need an email client which auto-wraps text, (such as Microsoft Outlook), or you need to include a script in the form which auto-inserts line breaks at a pre-designated character point. Try the **www.worldwidemart.com** site for suitable, free scripts. In the short term, I can only suggest you copy and paste the text into a package such as Microsoft Word.

56.6Kbps queries answered

One thing puzzles me about 56.6Kbps technology. Do you have to be within 12 miles of your IAP for it to work?
If your phone line is connected directly to the local exchange and it's a Digital system X BT exchange then, in effect, you have a digital path to the BT phone network. If your IAP is connected direct to their local exchange then they too have a digital connection. If the BT network between your exchange and you IAP is all through System X exchanges (let's face it most of the UK is System X) then this means that the whole line between you and your IAP is digital and 56.6Kbpswill work. If this is the case, will 56.6Kbps work both ways?
I live in Aberdeen but my IAP is in Shetland, 180 miles away. Should I fork out the dosh or not on one of these modems when they finally arrive?
Jason Reed
purge@zetnet.co.uk



Roger Gann replies: I'd urge caution when you're thinking about buying a 56Kbps modem. Thanks to the marketing war between USR and the Rockwell/Motorola camps, I see a repetition of the VHS/BetaMax battle, which didn't actually serve the interests of consumers. For the real story on the kind of performance improvements you can get with a 56.6Kbps modem check out our review on page 72.

The 12-mile limit you mention applies to what's called the local loop, which is the final, copper wire connection between your house and the exchange, not your IAP. This limit has been set to minimise problems with line quality, which obviously increase with distance. Most local loops are, in fact, much shorter than this, typically about six miles and I'm sure that, living in a major town as you do, you'll be even closer than this to your exchange, so it shouldn't be a problem.

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A complete guide to Dynamic HTML

Dynamic HTML could usher in a two-tier Web, where only professional developers have the experience to master HTML. David Bradwell asks if this is taking Microsoft's 'embrace and extend' message too far.

Just when you thought you'd got to grips with Net buzzwords, along comes Dynamic HTML. This is not a simple upgrade to HTML. Dynamic HTML ups the stakes in Web site development and means that, in future, the coolest sites will probably be those built by the biggest companies with the most impressive technical resources.

This will make your job as a Web page designer more technical, but may still have some benefits. But before looking at the pros and cons, and how to prepare for the move over to Dynamic HTML, a brief history lesson...

Microsoft vs The World

Unless you've been on a different planet for the last couple of years, you'll know that Microsoft and Netscape don't get on. In the good old days, Bill Gates didn't give a stuff about the Internet. Microsoft was ploughing a lone furrow with its proprietary Microsoft Network online service, leaving the rest of the world to enjoy the pleasures of the Net. Then it all went horribly wrong. Suddenly, pesky journalists started writing articles about Netscape becoming the new leader in software development, and how Microsoft's days of influence were coming to an end.

To be fair, Netscape didn't help much by stating its aim: to turn Windows into a collection of mediocre device drivers. Such fighting talk led, inevitably, to a fight.

And then one day Microsoft decided to take the Netscape threat seriously. Within six months, Microsoft had stated its own plan: to 'embrace and extend' the Internet into its Windows platform. There are two schools of thought here: either Bill Gates was publicly admitting he was wrong and had seen the light; or else he was acting the power-crazed megalomaniac, desperate to destroy any company that looked like a vague threat to his empire. Either way it was never going to be pretty.

Microsoft's Landscaping demo shows off the object model and 2D positioning features of dynamic HTML.

New Lesson

With the release of public betas of Internet Explorer 4.0 (IE 4.0), Microsoft is pushing back the boundaries by introducing Dynamic HTML. This could be seen as a good thing – an innovation that should lead to a more entertaining, and, dare we say it, dynamic World Wide Web.

Equally it could be seen as a 'run with us or get out of the race' ultimatum. The democratic golden days of the Internet could soon be a thing of the past. Cynics might suggest that Microsoft's enthusiasm for Dynamic HTML is driven less by a desire to see better Web sites than by an enthusiasm for knocking another nail into Netscape's coffin.

But that would only be half the picture; Netscape has also included Dynamic HTML support in its new Communicator browser. However, Netscape's implementation is different, and Microsoft's looks like it stands a better chance of being accepted by the all-powerful World Wide Web Consortium (W3C).

Both companies agree that the next stage for the Internet is to draw conventional HTML out of its shell to create more dynamic pages that add interactive object-based content. But that's about all they agree on, and in the meantime overworked Web developers are left with no clear standard to work to.

On top of that, Microsoft, Sun Microsystems, Hewlett-Packard and a group of other companies recently endorsed Extensible Markup Language (XML) as another way forward. Within XML you can create your own tags. So far Netscape has decided not to get involved in negotiations. Thomas Reardon, Microsoft's Internet Client

division program manager, said recently that while Dynamic HTML is the fashion today, XML will provide the missing link between the Web and CD-ROMs.

So where does this leave us? Standing still, looking up to see which pieces of the chaos will settle first. Just when you thought you knew how to write HTML pages that looked the same in every browser, everything you've learned so far could be about to be undermined. Comforting eh?

Microsoft's Dynamic HTML

According to Microsoft, Dynamic HTML offers "a collection of features that gives Web authors more flexibility and creative control over the appearance and behaviour of Web pages, as well as an easier and faster way to author interactive Web pages." We'll come onto those in a moment...

Microsoft has adopted the Cascading Style Sheets standard, already approved by the W3C. This gives Web masters the much sought-after font and layout control. Everything else Microsoft has implemented in IE 4.0 is still subject to approval. And, currently, if you create a page for IE 4.0, there's not a hope in hell that it will display in all its glory on any other browser.

In essence, Microsoft's Dynamic HTML works by offering Web authors a new way to control the HTML tags they already know by adding to them some JavaScript or VBScript. If you don't know one of these two languages you can't join the party.

Every element on a page (links, images, applets or block of text, for example) becomes an object that you can make interactive. Every time a user clicks or rolls his mouse over an object, the object can deliver more information without needing to refer back to the Web server. In other words, each object can contain hidden information that's only called when it's needed, so reducing screen clutter and traffic to the server.

Basic animation adds life to the dullest of pages.

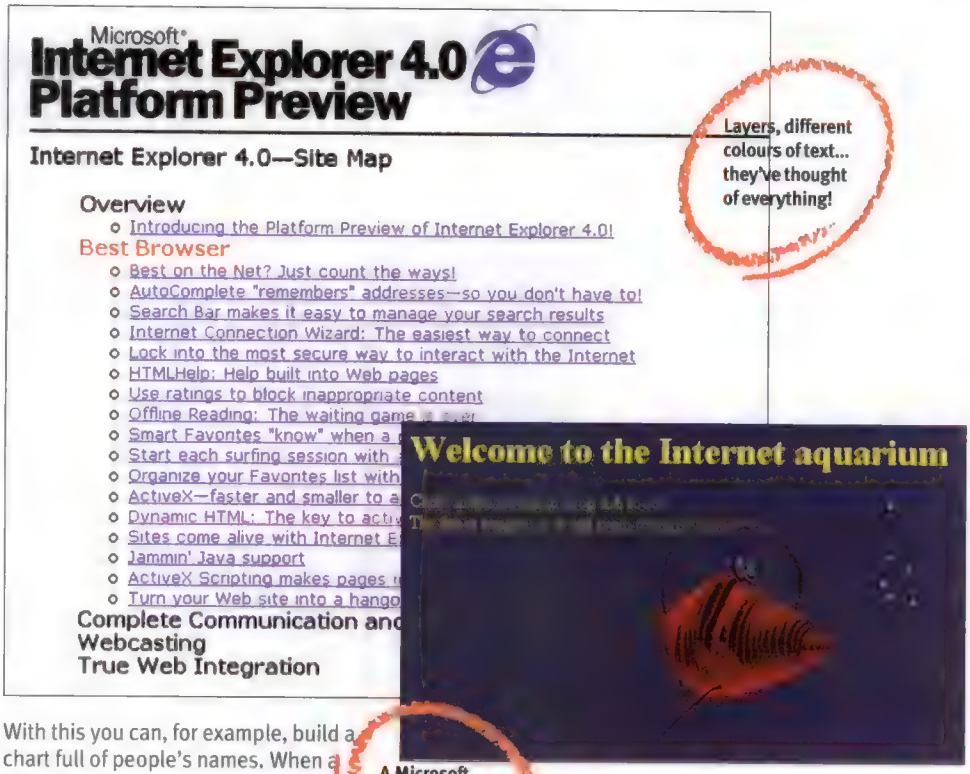
Microsoft's Dynamic HTML has four key aspects: the full HTML object model; 2D positioning; data binding; and multimedia controls.

● If you want to add depth to your pages without cluttering the screen, you'll like the full HTML object model. With this you can, for example, build a chart full of people's names. When a visitor runs her mouse over a name a pop-up box appears that tells you more about the person, and a link in the box would lead to yet more information.

● Anybody who's battled with tables in an attempt to get 100 per cent layout accuracy will be impressed by Dynamic HTML's 2D positioning features. Not only can you specify the exact placement of text and images on a page, but you can create multiple layers using the aforementioned Cascading Style Sheets. With these, images can overlap and appear transparent, allowing you to create new visual effects and animations. You can also combine positioning with scripting to build interactivity into your page.

● Data binding is quite a cool one. Once the page has been downloaded you can interact with the data it contains and redisplay it in various ways without having to download it again. The page can be sorted and filtered repeatedly, without calling to the server. If, for example, you're looking at an estate agent's site at properties priced from £70,000 to £90,000, you can narrow the search to £70,000 to £80,000 on-the-fly and your computer will do all the processing; it won't consult the server again.

● Finally, Dynamic HTML has multimedia controls, designed to make Web pages more dynamic by delivering the kind of graphics and animation usually associated with CD-ROMs. They work by downloading data in small chunks which are then rendered on the end user's computer – saving both download time and server traffic.



Layers, different colours of text... they've thought of everything!

A Microsoft animation demo. Cute, but pointless.

What is Netscape up to?

Netscape uses different object models and different scripting languages. In other words, if you design for IE 4.0, your page won't work fully on Communicator, and vice versa. The problem is that the software companies are offering features faster than standards can be ratified, and when you're dealing with two sworn enemies, agreement isn't likely.

Whichever path you choose, translating pages for the other platform will involve horrendous costs. Both companies have pledged to support whichever standard is eventually ratified by W3C, but ratification could be a long time coming, and we may need to wait for fifth-generation browsers before seeing the fruits of an agreement. Expect to see a return to the 'Best viewed with...' logos on a Web site near you soon.

Take me to the action!

If, despite all the uncertainty, you feel the urge to start exploring Dynamic HTML, the best places to start are the Microsoft and Netscape Web sites (at **www.microsoft.com** and **home.netscape.com** respectively). Both companies are running demonstrations – although obviously you'll need the latest versions of their respective browsers to view them.

Microsoft's offering is by far the most comprehensive, although at the moment it remains beset with the sort of programming errors that make you doubt the company's competence with its own technology.

You'll find the Microsoft demos at **www.microsoft.com/ie/ie40/demos.htm** The first, Lakes & Sons Landscaping, combines a number of Dynamic HTML's key features, including the object model and 2D positioning. When you pass your mouse over any button you'll see text display in the space below, or you can add plants, trees, fences and other items to the image with a single mouse click.

Next up is the IE 4.0 Web Site Table of Contents. Click on the main heading and a group of sub-headings appears below. Click on one of these and another layer emerges, in a different colour.

Two demos show off Dynamic HTML's data binding features. Arcadia Bay Company lets users access and enter information repeatedly while viewing a page – without having to keep hitting the Web server. Meanwhile, Best of the Web rapidly displays all the pages listed. This

The Netscape Stockwatch demo shows dynamic fonts in action.

speed is down to the fact that Dynamic HTML delivered all the content when you first downloaded the site.

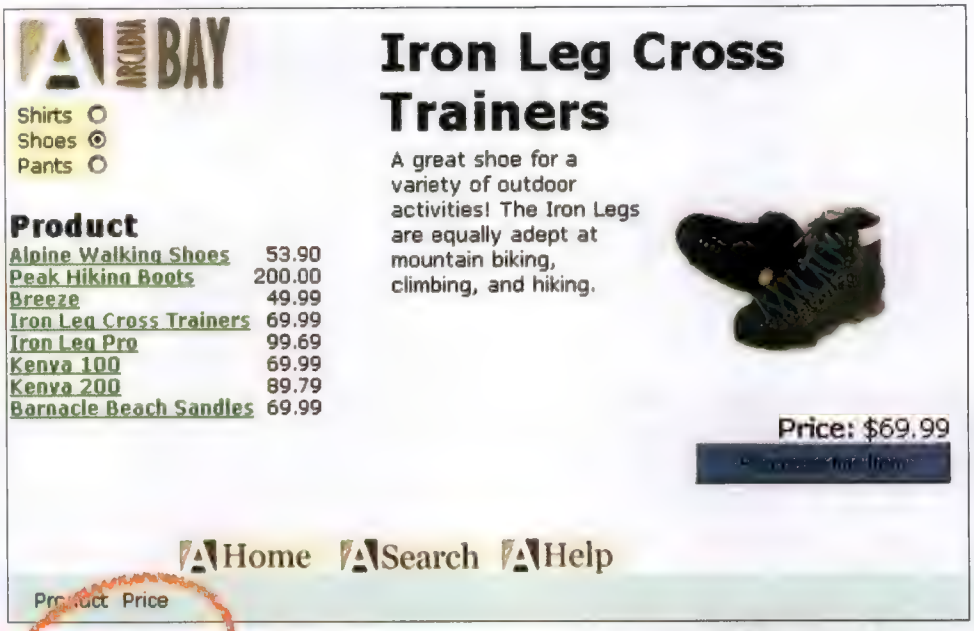
Of the other demos, Lights, Camera, Action shows how to render high-quality, lightweight graphics that are scalable and can be rotated in three directions, Acrobats With Style shows off animation, while What Lurks Beneath The Water? is a feed-the-fish novelty, complete with sound.

By comparison, Netscape offers demonstrations of dynamic font support, positioning and animation. Furthermore, it shows how to hide content layers in a Web page, and how style sheets can make Web page development easy and efficient.

But is it worth it?

What, then, are we to make of it all? Okay, so Microsoft's Dynamic HTML lets you create fabulous effects, but is it worth the bother? After all, your full creativity will be appreciated only by users of Internet Explorer 4.0. And with a bare minimum of 16Mb of RAM needed to run the browser, IE 4.0 might not catch on as fast as Microsoft hopes.

Call me a cynic, but I'm also sure that not everybody will appreciate the



Data binding, Arcadia bay style. Shame about the trainers.

way IE 4.0 attempts to take over your whole computer. The Platform Preview version seems to slow everything to a crawl. (Bearing in mind the demos were viewed on a 200MHz MMX Pentium machine with 64Mb of RAM, that's quite some achievement.)

I'd suggest you wait a while before becoming too concerned that Dynamic HTML will render your current Web site obsolete. When the standards become ratified, and the browser boys get their acts together, the audience will exist, but until then you'd be better spending time learning JavaScript if you want a serious technical challenge.

And in any case it looks as though learning a scripting language will be the way of the future, whatever the standard, unless you can afford a programmer to do the work for you.

Despite that, I can safely predict (with a certain sad air of familiarity born of watching the Microsoft marketeers at work) that Dynamic HTML, probably in near-Microsoft form, will be the way of the future. It may take a while, but soon we'll look back fondly at the good old days in the same way that some people now think wistfully of the Allegro when they see a Rover 214. It's definitely progress; it's definitely going to change the face of the Web. Whether that will remove some of the character of the Internet remains to be seen.

You can change the way both text and images are displayed by adding various filters to the Web page.

faxback

In this series we've covered the following topics:

1. Planning a site and basic HTML
2. Creating graphics for your site
3. Setting your site up on a server
4. How to get traffic to your site
5. How to create a newsgroup
6. How to enhance your site
7. How to make cash on the Web
8. Animating the Web
9. How to add frames to your site
10. Using tables on your site

If you've missed any of these articles, they're available via our Faxback service; see page 135 for details.

David Bradwell is the European Webmaster for Progressive Networks, and former deputy editor of *Internet Magazine*. You can contact him at davidb@real.com.

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Creating active Web pages

In the second part of our series on creating active Web sites, Steve Browne pulls apart Microsoft's batch of new development tools – Visual Studio 97. It's a behemoth of a product that could transform the way Web sites are created.

Last month, we looked at how easy it can be to create Web sites based around Microsoft's Active Server Pages (ASP) technology. True enough, ASPs are fairly powerful, but they still have their limitations because they rely on HTML, or client-side script languages like VB Script and Jscript and JavaScript. However, as these pages can be very 'active', they can react to – and act on – button clicks and field entries.

But to go a step further we need to delve into the world of real development tools. Languages such as Java, C++ and Visual Basic can all be used to add technical wizardry to your Web pages, using either Java Applets or programs written as ActiveX controls.

And that's where Microsoft's Visual Studio 97 comes in. This behemoth of a product contains all of Microsoft's main development packages, and is likely to be an essential purchase for Web developers wanting to add that extra bit of zing to their sites.

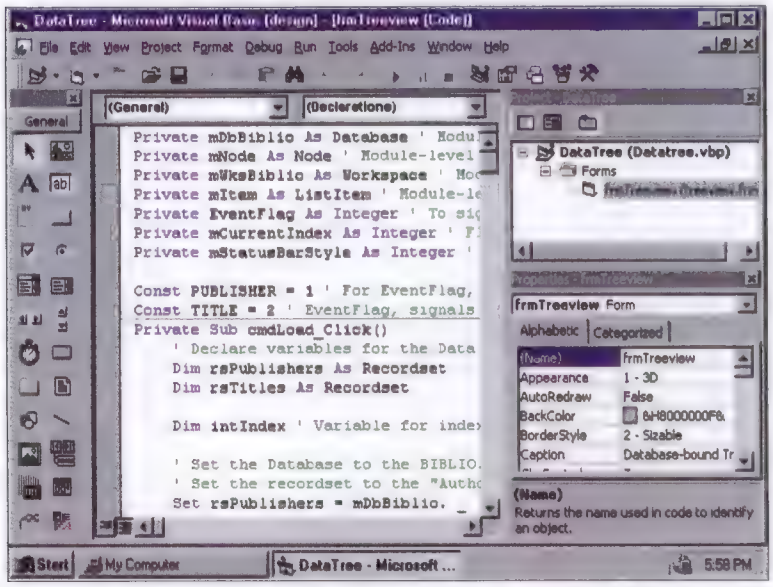
Visual Studio 97 isn't for the faint of heart. The product comes on five CDs and takes up over 2Gb of disk space when fully installed. However, if that sounds overwhelming, you can buy all the products separately.

Visual Studio 97 ships in two versions, Professional and Enterprise. Both come with Visual Basic 5, Visual C++ 5, Visual J++ 1.1, Visual InterDev 1.0 and Visual FoxPro 5. We looked at the higher-end Enterprise version of Visual Studio, which also comes with a number of other goodies, such as developer versions of SQL Server 6.5 and Microsoft Transaction Server, plus a copy of Visual SourceSafe 5, a program which handles source control for a number of users.

You also get a useful CD with both versions – the Library version of Microsoft's excellent Microsoft Developers Network (MSDN). This is a feast of technical information about all of the products, complete with example source code and a complete copy of Microsoft's famed Knowledge Base for the products within Visual Studio.

Getting Visual Studio up and running can be a fairly long process. Unfortunately, you have to install each package separately.

The main thrust of the software is to give the developer the tools needed to create ActiveX controls or Java applets. Of course you can also create standard Windows applications, but much of the documentation is aimed at developers working on Net-related technologies. For the Web developer, coming from technologies such as HTML and Shockwave, the most important part of the bundle is likely to be Visual Basic 5.



The busy Visual Basic 5 split screen leaves little room for the actual code. The program also comes with code tip boxes which help with syntax.

Visual Basic 5

Creating a Visual Basic program is fairly simple. Just create your screen, with buttons, check boxes and whatever other kind of control you want the user to interact with, and attach a small piece of program code behind the control. This could be something simple, such as the VB code which displays a picture when you click on a particular button, or to calculate results based on the contents of fields. It could also be something complex, such as logging onto a POP3 mail server, downloading any messages and displaying them in a new window for you to read.

Every control on a VB form has a set of methods and properties. Properties are variables that allow you to change how the controls look or react. A timer control, for example, allows you to set how often the timer runs. Methods are the actual events fired when something happens to the control. For a button, this means that every time you click on it, the click method will start.

Any program code you've put into the click method will then run whenever the button is clicked. In our timer example, the code in the timer method will run every time the timer actually runs. This means you can have a timer control set to download a Web page every 10 minutes or so.

Visual Basic has traditionally held a strong market presence where either speed of development or the ability to prototype a design have been the main requirements. Nearly all of the tools and features available to C++ programmers are also in Visual Basic 5 and this includes the important new feature, creating ActiveX controls.

It's simple enough to create these controls, just choose the ActiveX control

type when you start a new project. The result is on par with – and largely indistinguishable from – standard ActiveX control languages such as C++. VB even registers your control in the registry, making it very easy to add the control to a page of HTML using Visual InterDev, or any other package that can add ActiveX controls to a Web page.

For new and old Visual Basic programmers alike, a neat new feature is Quick Info. This is a variation of Microsoft's IntelliSense technology. As you type in your program code VB is looking at what you type, and throwing up small boxes, like Tool Tips, that list the syntax of the particular statement you're typing.

If you currently have a lot of Visual Basic front-end code, then your code can be converted to a new type of Visual Basic program, known as an Active Document. With the use of a wizard, any old VB program can be converted to an Active Document, which will then display and run within Internet Explorer, without having to rewrite the program as an ActiveX control. This feature alone will save many man-hours spent reprogramming old systems.

Databases are well supported from Visual Basic, so if the database support provided by the use of ASPs within InterDev doesn't go far enough, your VB program can take the next step. With the ability to hook into any ODBC data source and to also read and write Access-compatible database files, VB is a very powerful front-end tool.

Overall, Visual Basic 5.0 has redefined the rules for an easy-to-use visual development tool. It takes no time to set up a simple application or ActiveX control, and the language is easier to learn than either Java or C++. The fact that such powerful applications and controls can be created with such ease will hopefully remove some of the ridicule that VB programmers have suffered from in the past.

Trickier stuff

However, if you want to create anything that needs to interact with the operating system at a low-level, or use some of the non-core APIs, such as DirectX, then your only real choice is to learn C++. Microsoft's latest C++ compiler takes the capabilities of the previous version, adds copious amounts of Internet-related development help, speeds up the compiler and moves to a new environment, shared with J++.

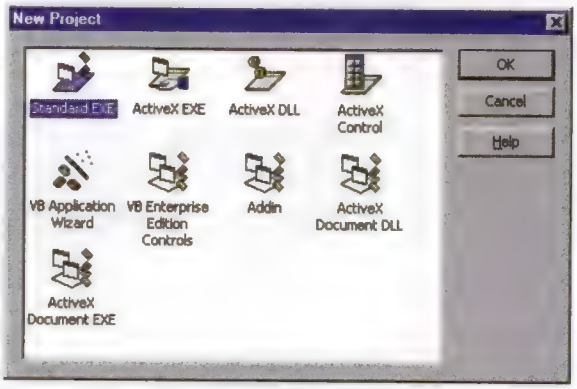
Developer Studio

The new development environment blurs the lines between Web projects, C++ projects and J++ projects. InterDev, C++ 5.0 and J++ 1.1 all use the same basic environment, which makes switching between the different types of project very easy. C++ and J++ programmers also benefit from the same kind of editing and debugging support.

Starting a new project gives the developer a huge array of different programs types to create. The main windows used are exactly the same as we saw in the InterDev article last month (*Internet Magazine*, May issue, page 129).

So a huge amount of online help is easily accessible at all times, covering everything from an HTML reference guide through to VBScript, and even a number of Windows API sets.

Each language obviously has its specifics, but the fact that as much as possible of the development environment is shared should save a lot of time which you'd usually spend learning different tools and editors.



VB5 now supports many project types, and displays a helpful dialog box when you start a new project.

Visual C++ 5.0

Visual C++ is one of the leading C++ compilers on the market. With this latest version, Microsoft has made creating Internet-related applications much easier than ever before. With that in mind, though, Visual C++ is not aimed at novice programmers. It's a very powerful language, and the fact that programs can access the Windows API directly could cause huge problems for the uninitiated.

Microsoft has added as many features as possible to ease the creation of Internet applications, both from a client and a server's point of view. Although much of what can be achieved in C++ can now also be done in Visual Basic, C++ allows much more control over how your program operates, and also allows you to create programs that plug directly into your IIS Web server.

The popular Microsoft Foundation Classes (MFC) are a set of libraries supplied with Visual C++ and a number of other C++ compilers that provide an easier way of accessing the Windows API calls than using them directly. For example, to create an empty window in C++ would usually take up many lines of code, initialising the window settings and actually displaying them. Using MFC, programmers can use just a few lines of code to achieve the same result. The disadvantage is that your finished program may run slightly slower, and you

Visual FoxPro

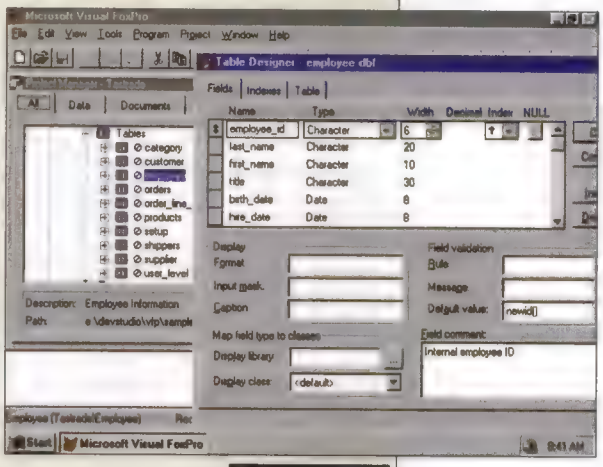
For corporates using the tried and tested dBase formula for their set up, the latest version of Visual FoxPro has a raft of new features which will allow them to start making the tricky move over to true open systems and Internet technologies.

FoxPro is one of only a few xBase compatible systems still selling in large numbers and Microsoft is pitching it as a full development environment.

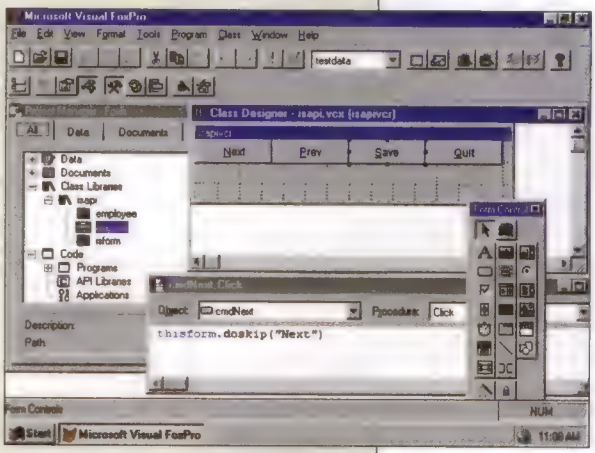
Like Visual Basic, Visual FoxPro forms can use ActiveX controls, so a control created in Visual Basic or Visual C++ can be used directly on a FoxPro form.

Other Internet features include the ability to run a FoxPro server component of your application on an IIS server. This means that a FoxPro application can use a browser as its front-end and so gives you a stepping-stone between legacy systems and the brave new world of Internet developments.

FoxPro provides a back-link to existing applications, and allows them to work seamlessly with other Internet applications. What's more, the ability to use ActiveX controls on forms massively extends the potential uses of FoxPro.



Visual FoxPro's database heredity is easy to see when you start playing with samples.



FoxPro applications can now be run on an IIS server, opening up xBase databases to your users.

don't have as much absolute control over what happens. The source code for the libraries is included, however, so code hackers can get in there and modify them if necessary. You also get a cut-down version of the MFCs, called the Active Template Library.

Visual C++ 5.0 is a logical progression in the C++ product line. The focus on Internet technologies probably makes Visual C++ one of the most fully-featured Internet development environments around. It's sure to be snapped up by serious developers.

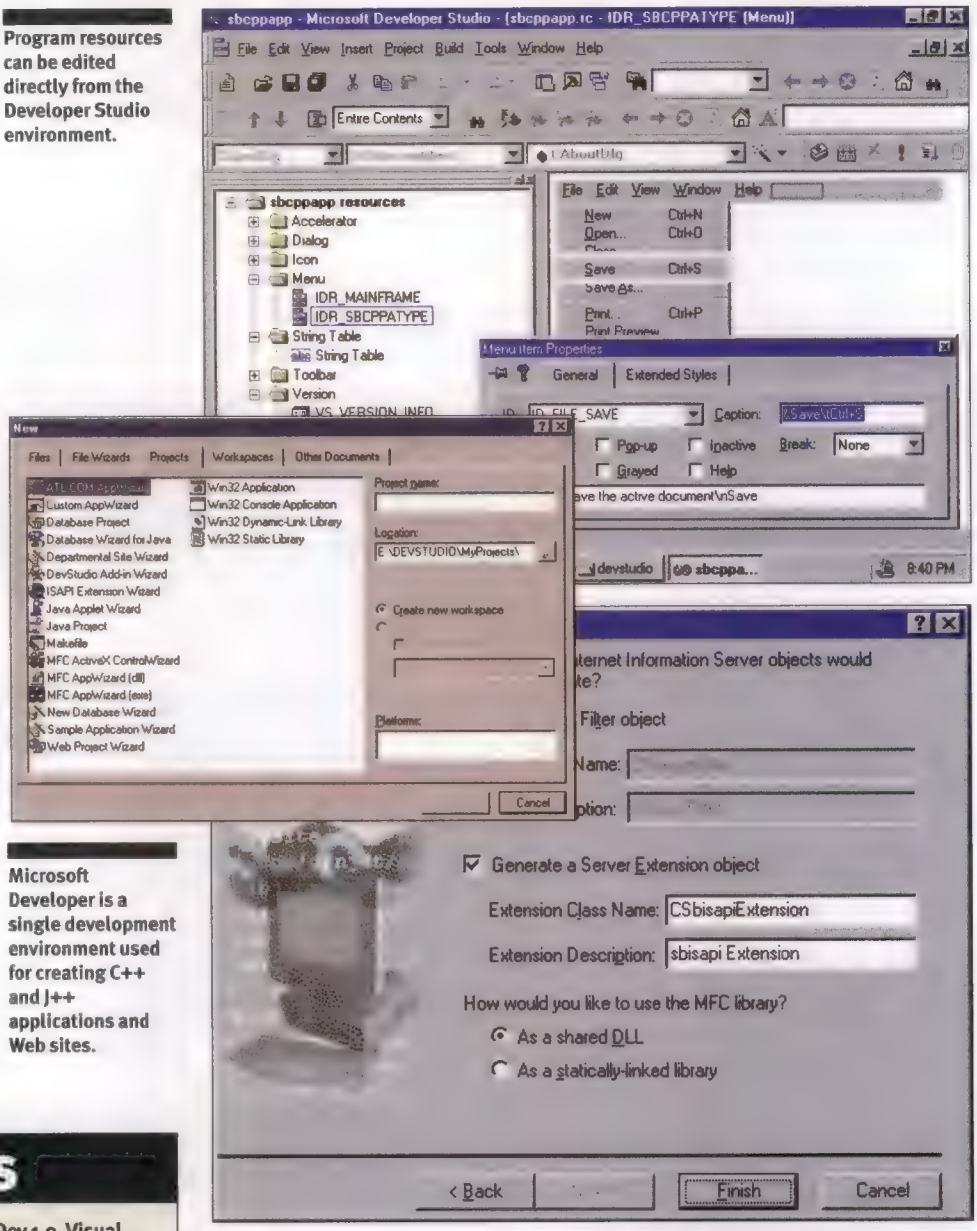
Visual J++ 1.1

Hosted in the same development environment as C++, J++ is an excellent Java development tool. Over and above the standard JDK tools supplied by Sun, J++ also has source-level debugging and a GUI builder.

Java isn't as difficult to learn as C++, and a novice programmer is unlikely to damage any system by experimenting with the language. To support these new programmers, Microsoft includes a Java applet wizard, which will create a bare-bones applet for you. This applet can be run as it stands, and has comments throughout so you know what code to add and, more importantly, where to add it.

If I had to make one criticism of J++, it's the fact that Microsoft makes it very easy to extend Java code using ActiveX as well as opening up the route to access Windows-specific APIs. In some ways this is a good thing, especially for those who've gone down the Windows platforms . Nevertheless it does compromise Java's platform independence, merging it in with Microsoft's development of its operating system.

Program resources can be edited directly from the Developer Studio environment.



Microsoft Developer is a single development environment used for creating C++ and J++ applications and Web sites.

This simple ISAPI Wizard creates the basic code needed to make an add-ons for Microsoft's Web server.

The flip side of this is a useful feature for Java programmers: the ActiveX Component Wizard. This will take any Java class you give it and turn it into an ActiveX control. This opens up all sorts of possible uses for your Java applet. In practice, this could mean that a Web page could contain an ActiveX control written in Visual Basic, which in turn uses ActiveX controls written in C++ and Java.

Oh and I have one last criticism – Visual J++ only supports the Java 1.0 specification. Thankfully, an updated version will be available later in the year, which will support Java 1.1.

Should you buy it?

Visual Studio 97 bundles together some of the best development tools on the market. With Microsoft's ongoing pursuit of the Internet market, Visual Studio is packed to the gills with Internet technology, making it as easy as possible for developers to get their programs wired.

There really is something for everyone here: Visual Basic for the novices; C++ for the experienced; J++ for the Javangelists; and InterDev for handling Active Server Pages. The Enterprise version we looked at comes with versions of Transaction Server and SQL Server, so extremely powerful, commercial level Web sites and applications can be built with relative ease.

In short, any individual or corporate developing Internet applications should get their hands on Visual Studio as soon as they possibly can.

Steve Browne is Internet development manager at CompuServe UK. You can reach him at steveb@cix.co.uk

Product details

Visual Studio 97 is made up of Visual InterDev 1.0, Visual Basic 5.0, Visual C++ 5.0, Visual FoxPro, MSDN Library Edition and Visual J++ 1.1.

An Enterprise version that includes Visual SourceSafe 5.0, SQL Server 6.5 and Microsoft Transaction Server is also available.

Visual Studio 97 Professional	*£809*
Visual Studio 97 Enterprise	*£1,189*

Microsoft allows users of Visual Basic, Visual C++ and Visual FoxPro to upgrade to the full versions of Visual Studio for £399 for Professional and £809 for Enterprise. Stand-alone versions of each component are available for:

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Visual FoxPro 5.0	*£399*
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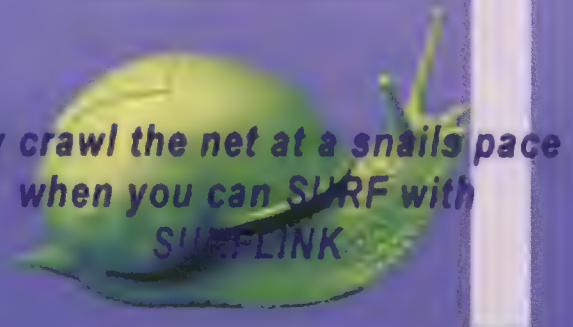

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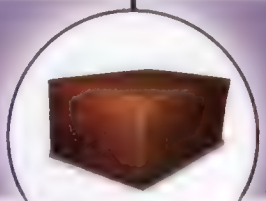

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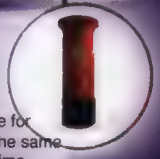

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How to get the right connection

Once you've decided to get your business online, the first hurdle to cross is choosing the right Net connection. Mike Bracken points out the pitfalls to avoid when choosing a commercial Internet access provider and explains the pros and cons of dial-up, ISDN and leased line access.

Everywhere you go people are extolling the business benefits of an Internet connection. Dennis Leary laconically promotes Lotus on its TV advertisements with the jingle, 'Work the Web'. BT is spending thousands pushing its various Internet offerings, and taxis plastered with UUNet Pipex litter central London.

The wisdom of having an Internet connection isn't in question. But, given the breadth of Net connection options, the choice is not straightforward.

Most IAPs will tailor their connectivity solutions to your business needs, but here's a rough idea of how much you can expect to pay. These prices are based on business configurations for LAN connections. Leased line prices are for businesses in London. Regional prices will vary depending on your distance from the POP, and any extras you've taken advantage of such as Web space, naming services and mail servers.

How much your connectivity will cost you		
UUNet Pipex	Phone (0500) 474 739	
64Kb ISDN	set-up £500	annual charge £2,000
256Kb leased line	set-up £3000	annual charge £32,000
2Mb leased line	set-up £3,200	annual charge £41,000
Demon Internet	Phone (0181) 371 1234	
64Kb ISDN	set-up £750	monthly charge £1,200
256Kb leased line	set-up £3,000	monthly charge £24,000
2Mb leased line	set-up £4,200	monthly charge £45,000
Netcom	Phone (01344) 395 600	
64Kb ISDN	set-up £775	annual charge £500
256Kb leased line	set-up £3,000	annual charge £28,000
2Mb leased line	set-up £4,000	annual charge £43,000
BT Internet	Phone (0800) 800 001	
64 Kb ISDN	set-up £499	annual charge £3000
256Kb leased line	set-up £1949	annual charge £17,000
2Mb leased line	set-up £2399	annual charge £45,000
Planet Online	Phone (0113) 234 5566	
64Kb ISDN	set-up £895	annual charge £2640
256Kb leased line	set-up £3,500	annual charge £33,000

Your choice of Internet connection depends on who within the organisation will use it, and on how mission-critical the Net is to your business.

The downside of dial-up

There are three common types of Net connection: dial-up; ISDN; and leased-line. The last two are, by a long way, the most popular for business.

A dial-up connection just isn't suitable for most businesses. AOL users who depended on their accounts for Internet access had a rude awakening earlier this year when several outages – or network failures – rendered their accounts redundant for as long as 36 hours.

The absence of service guarantees, back-up services and adequate technical support makes a dial-up connection way too risky for most business connections.

Dial-up connection costs are also hard to account for. Typically, you pay by the hour; companies with little control over individual employees' Web browsing habits may find dial-up bills quickly spiralling out of control.

Lots of service providers will try to make a compelling argument for using a dial-up connection for business purposes, but until 56.6Kbps connections become the norm, this is a hollow promise. The main reason that dial-up accounts are unsuitable for business is their lack of speed.

Beware: with the advent of 56.6Kbps, IAPs will make promises of ISDN-like connection speeds at dial-up costs. Although we've regularly reached speeds of about 50Kbps in our tests of the UUNet Pipex service (*see page 62*), this is only a trial user group, with guaranteed bandwidth. Once everyone begins to use 56.6Kbps, it's likely to increase network traffic and exacerbate the existing connection and bandwidth problems.

In truth, it's only mobile users, occasional users and tele-workers who ought to be looking at dial-up accounts. MSN, BT and a host of other IAPs offer cheap dial-up connections as long as users don't exceed a set number of hours per month and this is probably the best option, as it allows you to control costs.

To overcome the problems of a dial-up account, businesses need leased-line or ISDN connections, both of which come under the general category of persistent connections.

Choosing an ISDN link

First up is ISDN, which isn't really a persistent connection at all. Nevertheless, the 'It Still Does Nothing' tag it – deservedly – picked up in its early days is now redundant. With well over 30,000 ISDN routers sold every month, the take-up of ISDN has mushroomed, after a long gestation period.

ISDN has several benefits for businesses. Initially, ISDN was taken up by companies which needed to transfer files quickly. As its take-up increased, other companies saw the benefits of using ISDN internally for things like video conferencing, LAN-to-LAN communications and remote network access.

The most compelling thing about ISDN is that it can save your business money. Over ISDN, connections are made very quickly which reduces wait times and, consequently, makes employees more productive. And

Now choose your IAP...

Before you choose your Internet access provider here are a few key questions to ask them...

- Check out your IAP's own backbone connections and peering agreements. If a UK provider isn't adequately peered in the US, your Net traffic could be inordinately slow when its network is busy.
- Watch the small print. Some IAPs don't allow you to run certain applications over certain connections. For example, bandwidth-hogging telephony applications are not allowed on many dial-up accounts.
- Service level guarantees are vital. If access to the Internet is a mission-critical part of your business, then your IAP should be able to guarantee service levels.
- Technical support is a must. Many IAPs offer rapid-response units. Make sure technical support for hardware is available locally, and that the IAP's staff is familiar with all the software platforms your business uses.
- Along with the connection, IAPs can offer a variety of services such as domain naming, site hosting and mail servers. Make sure that these also have service level guarantees.

because the ISDN connection is made over an existing copper phone line, there are no extra call costs.

ISDN has other benefits. The introduction of Euro-ISDN, scheduled for later this year, should see a common ISDN standard across Europe. This should mean pain-free connections across the continent.

ISDN also gives your business extra goodies, such as multiple calls on a single line, and a reliable form of data transfer.

How ISDN works

ISDN is a digital solution which gives you a connection speed of 128Kbps. The line carries three separate digital signals. Two of these channels, the B, or bearer, channels, can carry voice, data or a combination of both at speeds of 64Kbps. Alternatively, the two channels can be bonded together to create a beefy 128Kbps connection.

The third channel is the D, or delta, channel, which handles control and signaling details, such as the number dialled and the bandwidth needed.

Which ISDN link is for you

You can choose to have a single ISDN number, but separate channel numbering is helpful if you want to split voice and data calls.

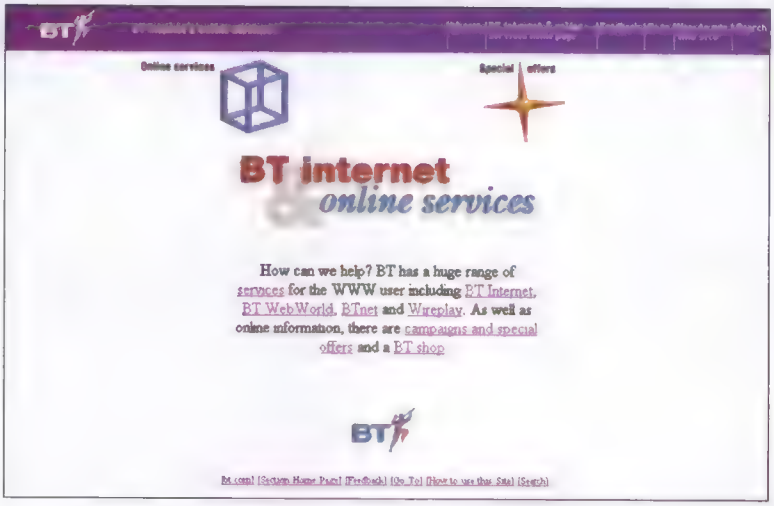
You can go a step further and get multiple subscriber numbering. This is where BT allocates you a block of 10 consecutive numbers, allowing you to add peripherals such as a fax, a second telephone line and an analogue modem to your set-up. You can then give each item its own distinct number, although they all run from the one ISDN line. BT charges an initial fee of £20 for this service, with a quarterly charge of £10.

The service we've described above is called ISDN-2 and it's the most popular ISDN solution because of the number of channels it provides. BT charges £199 for the installation of ISDN-2, with an additional annual charge of £535. However, users get a £105 call allowance for the first two years, rising up to £230 for the third year.

BT also has a corporate-size solution, called ISDN 30. This service is aimed at big businesses and is particularly adept at handling tasks such as voice over the Net.

ISDN 30 offers 30 B channels and one 64Kbps D channel. BT charges £125 per channel to install the service, and you have to take a minimum of eight channels. Thereafter, it costs £30 for every channel between 15 and 30.

The quarterly rental cost ranges from £37.50 to £45 per channel.



BT scales its network provision from dial-up accounts, through small business solutions and on up to multinational backbones.

ISDN caveats

ISDN does have its drawbacks. It can be difficult to set up, and it's not supported by all IAPs. You'll also need to set up the ISDN hardware. This takes the form of routers, cards and, occasionally, ISDN modems.

However it's configured, ISDN is increasingly attractive for every level of business. "The real benefit is combined voice and data," claims Chris Gahan, data solutions manager for BT. "For smaller businesses and professionals, ISDN also brings another phone line, and that's important."

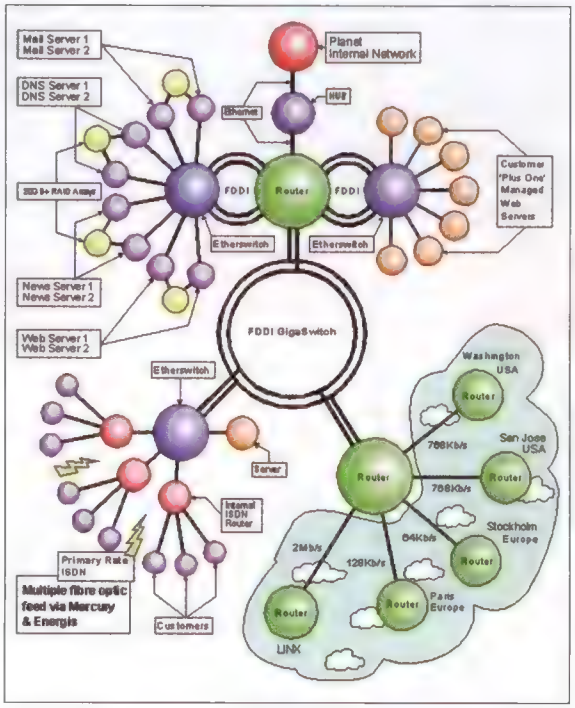
Leased lines

ISDN has its limits and it can be prohibitively expensive for users who need occasional, but mission-critical connections to the Net. If your business depends on a persistent Net connection, and you need a guaranteed connection rate and service level, then you need a leased line. Although cable and ADSL hold promise for future connections, right now a leased line is the only answer.

Leased lines are great for providing multi-megabit connections. If you're looking to set up an intranet or want to support your own Web site, leased lines are a must.

While a leased line might seem like a horribly expensive option, you should remember that they incur no extra costs once you've paid for the installation and the fixed yearly or quarterly charges. And at least this means you know how much your Internet connection is going to cost your business over the next year.

When you choose an IAP it's important to check out its network capacity. Pictured below is Planet Online's network.



It is said that "the bitter taste of poor quality lingers far longer than the sweet taste of low price". Yet you can now buy premium quality leased-line Internet connectivity from Britain's best core ISP for just £1,800 per quarter plus VAT, *inclusive of leased-line to your door.* Contact us now for friendly professional advice that will leave you smiling sweetly for years to come.

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Demon Internet makes an initial charge of £1,000 plus a £6,000 yearly charge for a 64Kbps leased-line connection to the Internet, and adds a £1,200 surcharge to this yearly charge if your company is outside central London. These prices rise steeply as bandwidth increases. A 256Kbps leased line has a £3,000 initial charge and a yearly fee of £24,000.

The benefits of persistent Internet connections are immense, though. Many companies offering leased lines can offer service level guarantees. For example, UUNet Pipex offers a 99.5 per cent guarantee on many of its business services, so if you pay for a 128Kbps connection to the Internet, you know you're going to get it. The company also allows users to view a map of the current state of its network, Meanwhile, Demon Internet offers rapid response and dedicated support groups.

What's more, bandwidth-hogging applications that can reduce other connections to a crawl – particularly telephony and videoconferencing – don't have the same debilitating effect on leased-line connections.

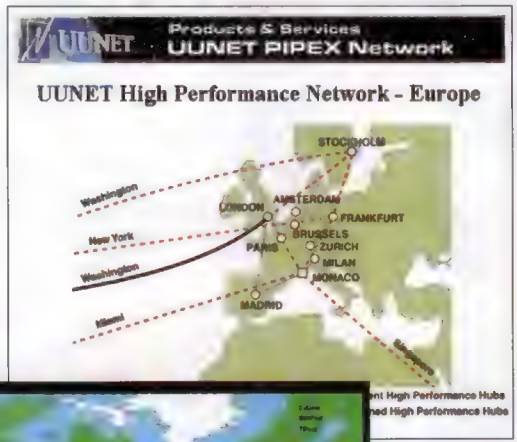
Leased lines are also good for scheduling your Net access. Many tasks such as file transfer, network management and application downloading can be scheduled for off-peak times, freeing up bandwidth for office hours. This allows the connection to support the optimum number of users, not just the power users in an organisation who normally hog the ISDN connection.

It's pretty simple to get a leased line up and running. As each office machine views the connection as a LAN-based resource, you only need a local TCP/IP stack running on every PC, plus your Internet software. This helps harried IT managers, and allows them to quickly evaluate who's using the leased line connection, and for what.

Leased-line blues

Leased-line connections do have their drawbacks, though. As they're essentially a private circuit run from your office to your IAP's nearest Point of Presence (POP), you could run up a connection charge, depending on how far away you are. This means it's vital that your IAP supports leased lines at your local POP.

You also need to take the long-term view when you buy a leased line. If you opt for a 64Kbps option and find you need to upgrade later, this usually means swapping copper for fibre. Although a 128Kbps line is essentially the same as a 2Mb line, you'll face upgrade



UUNet's network map shows how strong their presence is in Europe.

Planet Online's map shows just how many jumps are required to get around the world with its service.

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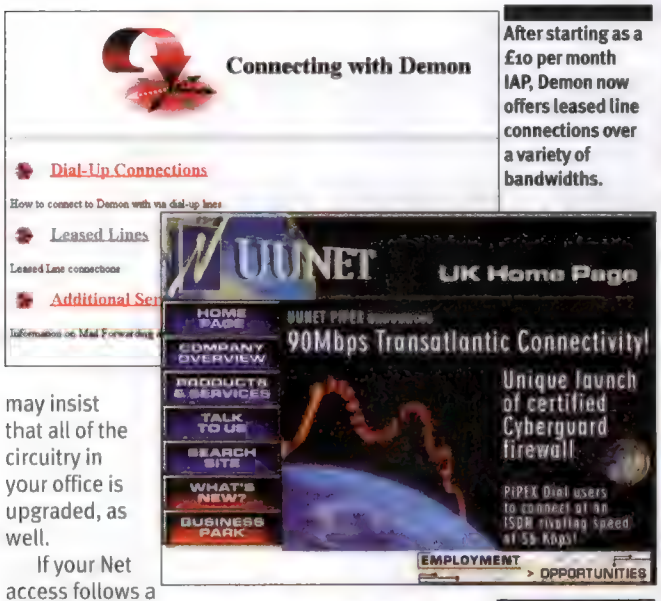
costs, as the IAP has to reconfigure its software controls. The router within your building may also need altering, or even replacing. If the worst comes to the worst, your telecommunications provider may insist that all of the circuitry in your office is upgraded, as well.

If your Net access follows a particular usage pattern, then some IAPs offer a cost-effective solution to this problem. UUNet offers a PipeXpress service where you pay a set fee for a 128Kbps line that's only charged at 64Kbps levels but can provide 128Kbps delivery at a cost per Mb for a certain part of each day.

Using video conferencing for one hour a day, for example, might not justify an investment in a 128Kbps line. However, if you can pay for that bandwidth at 8.9p per Mb (6.7p per Mb off-peak) then it becomes much more appealing, especially when you consider that a line upgrade from 128Kb to 256Kb will cost you £1,000 with UUNet.

Working out bandwidth requirements is notoriously difficult, but you can guarantee that as your employees become more Net-savvy, the demand for a Net connection, a fast one, will rise.



After starting as a £10 per month IAP, Demon now offers leased line connections over a variety of bandwidths.

Bandwidth connections may sound impressive initially, but peering and network resilience are equally important.

Mike Bracken (mikebr@internet.emap.com) is Deputy Editor of *Internet Magazine*.

Coming up...

Over the next few months we'll be taking you,step-by-step, through the process of setting up a good, effective Web presence for your business. In the following months we'll be covering:

How to host the site yourself
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Getting value for money from your Web design company
How to brief your Web design agency. How much they're going to charge you, and how you can make sure they work to budget and meet deadlines.

Getting existing company data to your Web site
How to integrate your existing company data into your site.

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If you've missed any of the articles in this series, they're available from our Faxback service. See page 135 for details.

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Writing basic Java applets

Java applets have taken the Web by storm. In the second article of our How to use Java series, Simon Brock takes you on a step-by-step guide of how to add a Java button applet to your Web site, and also explains how applets work with the applications around them.

The Internet community has gone mad over Java because it allows them to produce applets – those small, but, importantly, incomplete applications. An applet carries out a set of tasks but it needs the help of another application to do this. On the Net, this other application is usually a browser, but it could just as easily be a special application designed just to run applets. Eventually, your computer's operating system will support Java applets directly, which will mean you'll find Java applets popping up all over the place.

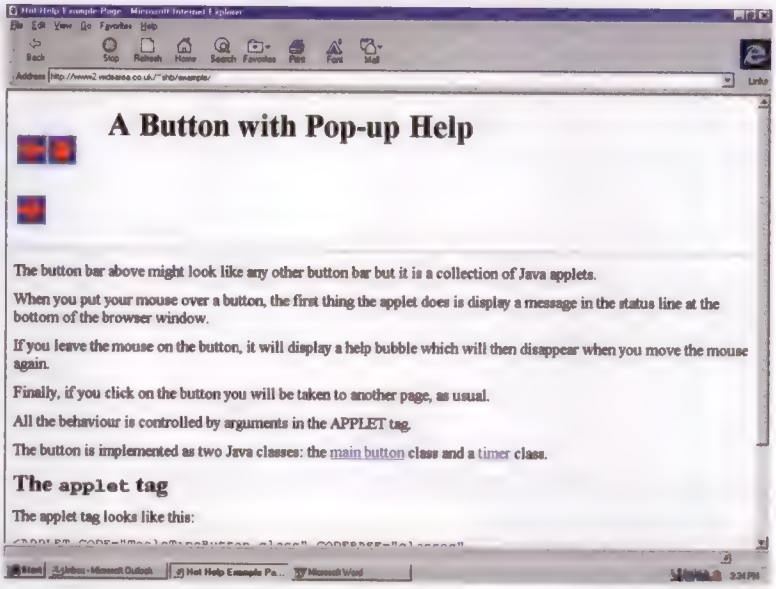
The ins and outs of applets

A Java applet gets its resources from a range of places and it uses them in a variety of ways. When you're designing an applet you need to take into account the input you want to get, and from where; where you're going to send the output; and how you're going to display that output. But the first step is to get your applet onto your HTML page...

The HTML page

An applet is embedded in the page with the Applet tag. The Applet tag works much like the IMG tag, it tells the browser where to download the applet and the width and height of screen space to allocate.

However, unlike the IMG tag, the <APPLET> tag is balanced with an </APPLET> tag which encloses a number of <PARAM> tags. The <PARAM> tags are used to pass extra controlling parameters to the applet. For example, an applet that displays an image can be told what image to display with judicious use of the <PARAM> tag.



Our Java button (pictured in at the top of this screen) sits happily on the page until the mouse hovers over it.

The browser

Java applets spend a lot of time interacting with the browser. The browser – and, by implication, the machine's operating system – give the applet the space to display output and play sounds.

The applet interacts with the browser in other ways, too. Firstly, the browser carries out a set of operations on an applet. When an applet loads, the browser tells the applet to initialise. It then tells the applet to start and subsequently tells it to stop when the page containing the applet is unloaded.

An applet can also give the browser instructions. It can, for example, tell the browser to load another document, perhaps telling the browser to load that document into a particular frame. Alternatively, the applet could display a message in the status line of the browser.

Finally, the browser also allows the applet to communicate with other applets on the same page.

There is an important point to make here – remember that the applet has virtually no access to the services of the browser or to the computer running the browser. This means that an applet can't do naughty and potentially dangerous stuff such as accessing files on your computer or launching an application.

The server

Applets can also interact with the Web

server it was downloaded from – usually to download resources such as pictures and sounds. The standard Java language can download and display both GIF and JPEG images, and can also handle sound.

A Java applet can also download other Java classes. This means an applet can be embedded in a Web page, start executing and then download more applets as they're needed. What's more, a Java applet can interact with any of the other programs on the Web server.

The user

Finally, and perhaps most importantly, the applet not only displays items and play sounds via the browser, but it can also interact with the user. The applet can detect whether the mouse is hovering over the applet or it can pick up keyboard input.

Creating your applet

Below you can see the code needed to create a simple button applet – a complete working Java program. Don't worry you don't have to type all the code in you'll find it all on the *Internet Magazine* Web site at **www.emap.com/internet/java/**

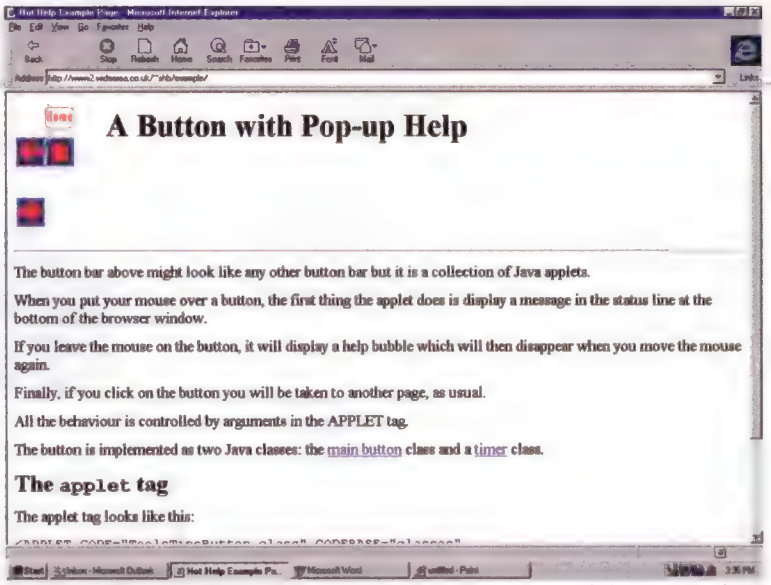
When the user runs his mouse over our Java applet button, it displays a message in the browser's status line. If the mouse hovers over the button for a certain amount of time without moving, the button will display a help message – in the same way as Tool Tips in Windows or Balloon Help on the Macintosh work.

To display the message the applet loads two graphics – one for the button and one for the help. It then displays these in a box. By careful use of transparency, the help text can be superimposed on the button.

How the applet tag works

Like all the best Java applets, the one we're about to create is highly parameterised. This means we can change the way the applet works by simply feeding it <param>eters. The applet tag looks something like this...

```
<applet codebase="classes"
code="ToolsTipsButton.class"
width=40 height=50>
<param name=
"buttonGraphicName"
value="../images/button.gif">
<param
name="hotHelpGraphicName"
value="../images/help.gif">
<param name="sleepTime"
value="1500">
<param name="location"
value="/home.html">
<param name="target"
value="_top">
<param name="statusMessage"
value="Take me home">
</applet>
```



Lo and behold, hover over the Java button for long enough and up pops our help message – isn't technology a wonderful thing?

Here's how each section of the code works:

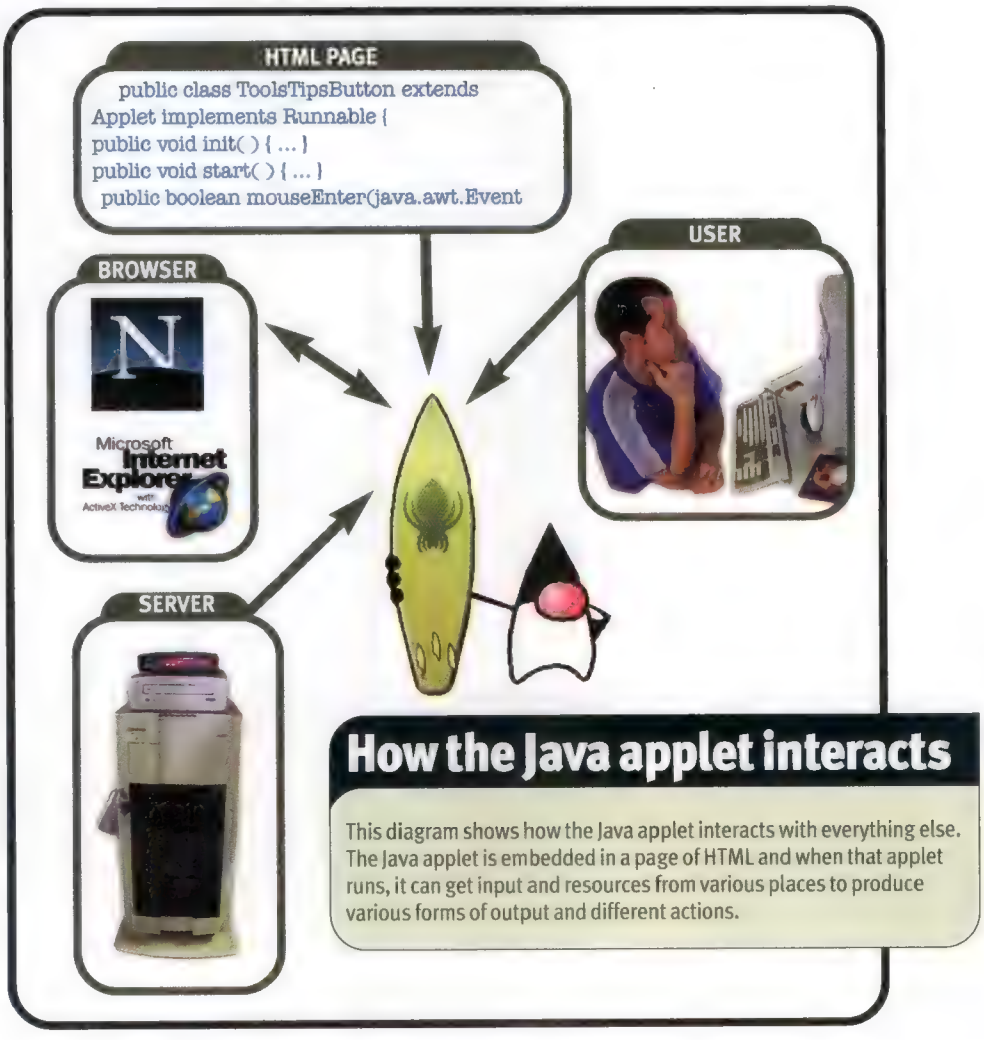
- The codebase parameter does two things: it tells the browser which directory the applet is stored in and where it's going to run.
- The code parameter names the applet we're going to run.
- The width and height tags tell the browser how much screen space to allocate.

The <applet> tag can contain a number of <param>eter tags (this one has four), which tell the applet what to do. In this case the <param>s are:

- buttonGraphicName – the name of the file that contains the button graphic.
- hotHelpGraphicName – the name of the help graphic.
- sleepTime – how long the applet should wait before displaying the help.
- location and target – where the browser should go when the button is pressed.
- statusMessage – the message the applet displays in the browser's status line as the mouse hovers over the button.

How it works

The source code for the applet comes in two files, each file contains one Java class. A class is a collection of data and functions which explain how to access that data. This is the core idea in object-oriented programming; these files describe how to create an object. One file contains a definition of the applet, which



How the Java applet interacts

This diagram shows how the Java applet interacts with everything else. The Java applet is embedded in a page of HTML and when that applet runs, it can get input and resources from various places to produce various forms of output and different actions.

does most of the work; the other file contains a timer class.

In brief, the applet starts, loads the graphics and then waits. The applet is then told when the mouse is over it and this starts up a timer which will then tell the applet to display the help text after a certain time has elapsed. If the mouse moves, the timer restarts and if the mouse leaves the button, the timer stops. The applet class is divided into a number of sections. In summary, it looks like something like this:

```
public class ToolsTipsButton extends
Applet implements Runnable {
public void init() { ... }
public void start() { ... }
public void stop() { ... }
public boolean mouseEnter
(java.awt.Event evt, int x, int y) { }
public boolean mouseUp
(java.awt.Event evt, int x, int y) { }
public boolean mouseMove
(java.awt.Event evt, int x, int y) { }
public boolean mouseExit
(java.awt.Event evt, int x, int y) { }
public void update(Graphics g) { } }
```

■ The first line of the class gives the class name (ToolsTipsButton) and says that it's based on the class applet. This tells the compiler to expect to look for a number of method declarations – these are the functions on the following lines.

The first line also says that this class 'implements Runnable'. This tells the compiler that this class can behave in other ways (check out next issue's Java article for more details on this). The lines which follow define the methods of the class.

■ The init() method is called by the browser after it's loaded the applet. The applet uses this to look at the parameters it's passed and to start loading the graphics. An applet can't display anything during this method, which should only be used to initialise the applet's variables.

■ The start() method is called by the browser to tell the applet to start.

■ The stop() method is called by the browser to tell the applet to stop. Generally the stop() method is called when the browser unloads a page. This usually happens when the user moves to another page or quits the application.

The next four methods are also called by the browser when the mouse moves near the applet. The general sequence of events is...

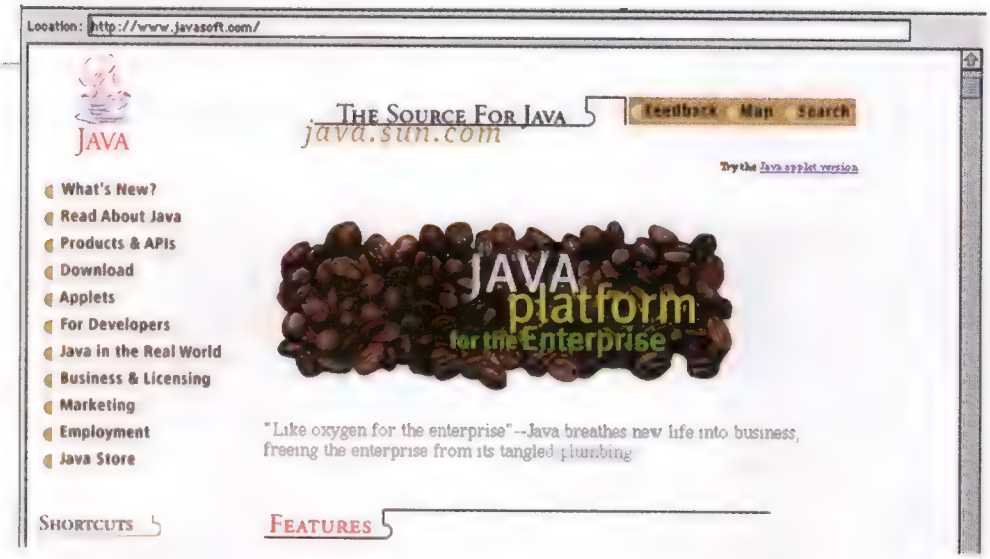
■ The browser calls the applet's mouseEnter method when the mouse first goes over the applet.

■ It then calls the mouseMove method a number of times, depending on how the mouse moves over the applet.

■ The mouseExit method is called when the mouse leaves the applet.

■ The mouseUp method detects when the mouse button goes up, that's when the user clicks on the button to go somewhere.

■ Finally, the update method is called to tell the applet to display something. The applet is passed a graphics object which is then mapped onto the visible part of the applet in the browser window.



An applet can only update its appearance when it's asked to. The code shows that this method is called a number of times.

Simon Brock (shb@widearea.co.uk) is a Java developer and the technical director of Wide Area Communications.

You can download JDK 1.1 and JavaBeans from www.javasoft.com.

How to compile an applet

Before a Java program can be used, it has to be compiled. A compiler is an application which performs two tasks: firstly it checks that the given code is syntactically correct, and secondly it converts the Java program to Java Virtual Machine instructions so that it can run. There could also be another level of compilation which happens when the Java program is executed and translated into a native code, via the Just In Time (JIT) compiler.

Generally when you're developing a Java applet, you'll need two programs – the compiler itself and a Java Virtual Machine to run the applet on. You'd normally use a cut-down version of the Java Virtual Machine, usually built into a program called an Applet Viewer or Applet Runner. The Applet Viewer is told to run the applet by a page of HTML which contains APPLET and PARAM tags.

The best compiler to start with is the free Java Development Kit (JDK) from Sun, available from www.javasoft.com and a number of mirror sites including sunsite.doc.ic.ac.uk. The JDK is available for Windows 95, NT, Macintosh and Sun's Solaris operating system, and includes a compiler, Applet Viewer and a Java Runner (to run Java applications).

You'll also need some form of a text editor if you're using JDK. There are plenty available for all platforms, including editors which understand Java syntax and will colour keywords appropriately.

Once you've downloaded the JDK you simply tell the compiler to compile each file in turn, and it produces class files. You then write the HTML file, including the APPLET tag, launch the Applet Viewer and open the HTML file. The Applet Viewer will then run the applet, opening a new window to run it in.

Sun's JDK can develop quite large applets, but it's not awfully user-friendly. However, the many Integrated Development Environments (IDE) available can integrate the compiler, editor and runtime environment into one easier-to-use application, some of the best are listed below.

Other Java development environments

Microsoft's Visual J++ (Windows 95/NT only; see www.microsoft.com/visualj/)
Metrowerks CodeWarrior (Macintosh; see www.metrowerks.com)
Symantec Cafe (Macintosh and Windows 95/NT; see www.symantec.com/index.html

Upcoming Java Features

July How to develop a multi-tasking Java applet.

August Manipulating graphics with a Java applet.

September How to write your own Java interface.

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Keep up-to-date

If you missed last month's Java feature, Getting to Grips with Java, don't worry you can get hold of a copy from our Faxback service. Turn to page 135 for details of how to use the service.

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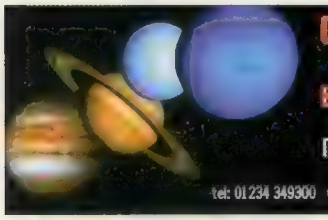
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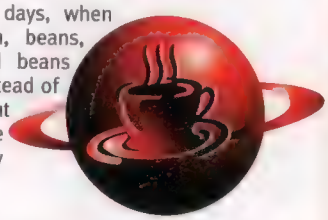
Start to grow your business now!

There's more going on at Café Java than just surfing, sites and sandwiches, though upstairs at the café is a corporate division, which provides a "one-stop shop" for companies that want to get netted and learn about the marketing opportunities the Internet offers. The Internet offers so many different ways of doing things, but at Café Java, their aim is to teach people to use the right one. The café has its own team of experts that know how to convey their Net know-how. Mark, Darren and Sumi get together to develop Web software and Web sites for clients and help them develop their Internet or Intranet site.

The Java is pretty big on training and spreading Net awareness, and start 'em young with their special kid's session on Saturday Morning from 9-11am, downstairs in the main café, where all the famous Disney characters can be seen, some in animated form. Café Java are constantly aiming to provide new services: at the moment, Java are currently upgrading their IRC (Internet Relay Chat/Conferencing) capabilities. Java have text IRC, and are now also adding sound via microphones and even have plans to introduce video conferencing soon. This means Net users can also talk to anyone around the world via the Web, and when video is introduced, even see them. With IRC, anyone of any age can use computers to communicate, with a minimum of tuition.

Some may long for the old days, when cafés just gave you egg, bacon, beans, sausage, bacon, beans, egg and beans with chips (on all the crockery), instead of virtually real ale via the Net, but Milton Keynes just isn't the place for them – this city's too busy surfin!



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1) Who manufactures Visual Café?
2) On what media does Key's Java training come?
3) Communicator is the latest version of which browser?
4) Name one household appliance for which Java was originally created.

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provider la

Internet Magazine carries out the most comprehensive set of performance tests on Internet access providers in the UK, and this month we test more providers than ever before. Not only do we test how easy it is to get a connection, but also the speed of downloads once you're online.

Biggest tests ever

This month we tested a record 64 Internet access providers (IAPs) and we'll be adding even more next month. The results, over the following two pages, are the industry's most comprehensive tests ever.

This month a dozen new IAPs joined our test but we still saw the big boys nudging their way up the table – Easynet, U-Net and CompuServe have all made steady climbs.

The facts and figures

Last month, less than a third of the IAPs recorded no downtime, while this month the figure was up to over half the 34 providers tested. The availability average dropped to 91 per cent. The overall figures were brought down by Abel and Legend Internet, which both recorded a lot of downtime.

The average download time for a Web page was 18.67 seconds. This is roughly the same figure as last month and gives a useful benchmark of how long you should be prepared to wait for a Web page to download.

Number one

Demon, which has been quietly working away on its network, has reaped the rewards and knocked SAQ Network Services off the top of the charts. There was hardly anything to chose between the two of them, but SAQ Network Services had a couple of aberrations in its Web speed results, bringing its average figure down a fraction – just enough for Demon to seize the initiative.

Demon is flying high at the moment and has recently announced subscriber figures of more than 100,000. James Gardiner, Marketing Manager, is keen to build on the work Demon has done to improve its network. It's fulfilled its aim of achieving 100 per cent availability and can boast some speedy download times. "We're measuring and growing our modem pools on the basis of engaged tones and, as we speak, we've got more lines on order waiting to be installed," says Gardiner. One of Demon's advantages is its use of two 0845 numbers. Each goes through a different telecommunications company, one with Energis and one with COLT (City of London Telco). "We've been working on system resilience and it's good to see the fruits of that labour," says Gardiner.

Gallant in defeat

Despite being knocked off the top position, SAQ was pleased with its performance. "The response we've been getting from being number one has been phenomenal. These results just go to prove that SAQ has kept up its standards. Of course we'll be hoping to be back at the top next month," confides Geraint Bungay, Marketing Manager.

Bouquets

Onyx managed to pinpoint the areas that were letting it down and appear to have remedied these. "We've had problems at peak times, in particular access to our transatlantic link, but we've now increased our reliability and resilience. We'll have the same performance times off-peak, but at peak times we should have improved considerably," says Neil Stephenson, Marketing Co-ordinator at Onyx. "We have plans to add further resilience, we want to be seen as one of the top five IAPs in the country," he says.

Relative newbie to the tests, Zoo Internet, has leapt into the top five. The company has its own managed bandwidth to the US and currently has a user-to-modem ratio of 9:1. Zoo has spent £2 million on its equipment. "In the past year we've only had seven hours outage. We expect to have 100 per cent availability at all times, unless we have a planned strategic time when we hot swap routers," says Guy Reavley, Internet Services Director.

Strong newcomer

ClaraNet has shot straight into the top 10 with a good set of results. The bulk of its customers are dial-up users. "We're striving to get the capacity to deal with our new subscribers and to give them a good a level of service as possible. Our targets are less in terms of numbers and more in terms of level of service," says Marketing Manager Deborah Green.

Connection issues

Legend Internet's availability figures were down to 46.51 per cent this month. However, it appears that, in some instances, our US Robotics modems were having problems connecting with the Pace modem racks at Legend.

Dominic McDermott, sales manager for Legend Internet, is quick to point out that Legend Internet has experienced no real access problems and that its user-to-modem ration is at a healthy 10 to 1. "We will follow the instructions given to us to try different modem strings to remedy this problem. For the majority of our users, the service is fine. Our aim is to go for dedicated users who are willing to pay for a system that is going to be constantly upgraded," he says.

Cancellations

Two accounts were cancelled during this month's test period. Nildram has made substantial changes to its network and now also offers a national 0845 number. We had been testing on the older Tring number but, needless to say, Nildram will be back in the tests next month.

Netcom has provided us with a free guest account but it was cancelled during the test period. We'll be looking at getting a longer-term account for next month's tests.

If you work for a provider that's not tested here and would like to be included in our labs tests, please send details to Paul Bennett. You can contact him at paulb@internet.emap.com

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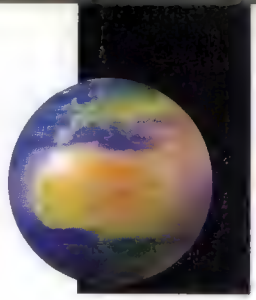

This month's best IAPs, as tested in Internet Magazine's labs

This month	Last month	Provider	Telephone	Support times	Availability (expressed as a higher is better)	Fastest web speed (secs)	Slowest web speed (secs)	Average web speed (secs)
1	4	Demon	(0181) 371 1234	24-hrs-a-day	100.00	8.33	17.00	12.78
2	1	SAQ Network Services	(0800) 801 514	24-hrs-a-day	100.00	8.33	31.00	13.61
3	38	Onyx	(0345) 715 715	8.30am-6.00pm Mon-Fri	100.00	10.00	18.67	13.92
4	27	Zoo Internet	(0345) 326 326	9am-9pm every day	100.00	9.67	22.67	14.06
5	24	Easynet	(0171) 681 4444	9am-5pm Mon-Fri/10am-5pm w/e	100.00	8.67	33.00	14.18
6	12	U-Net	(01925) 484 444	9am-9pm Mon-Fri/email at w/e	100.00	10.33	18.67	14.28
7	N/A	ClaraNet	(0171) 647 1000	24-hrs-a-day	93.75	9.00	19.33	13.65
8	14	Pavilion	(01273) 607 072	9am-5.30pm Mon-Fri	95.24	8.00	32.00	13.88
9	N/A	Cerbernet	(0500) 636 343	9am-6pm Mon-Fri/9am-6pm w/e	100.00	11.00	20.00	14.59
10	19	Intonet	(0181) 941 9195	8am-8pm Mon-Sat	100.00	10.33	19.67	14.81
11	N/A	ProWeb	(0500) 636 343	10am-4pm Mon-Fri	100.00	9.00	20.67	15.02
12	18	CompuServe	(0800) 289 378	9am-9pm every day	95.45	11.33	28.33	14.35
13	3	Global Internet	(0181) 957 1008	9am-9pm Mon-Fri/10am-6pm w/e	100.00	9.33	29.00	15.24
14	N/A	London Web Communications	(0181) 349 4500	9am-9pm Mon Sat/pager Sun	100.00	10.67	28.33	15.49
15	15	Primex	(07000) 774 639	9am-6pm Mon-Fri	90.91	9.67	32.67	14.22
16	35	Cable Internet	(0500) 541 542	9am-9pm every day	100.00	10.00	50.00	16.11
17	33	Direct Net @ccess	(01232) 330 311	9am-6pm Mon-Fri/9.30am-5.30pm Sat	100.00	9.33	34.33	16.42
18	5	Enterprise	(01624) 677 666	9am-6pm Mon-Fri	100.00	10.00	44.67	16.59
19	51	VossNet	(01753) 737 800	9am-7pm Mon-Fri/Sat 10am-3pm	100.00	8.33	48.67	16.64
20	28	Entanet	(0500) 368 2638	9am-9pm every day	100.00	9.33	33.00	16.71
21	N/A	Cyber Ware	(01733) 765 005	9am-midnight Mon-Sun	100.00	9.00	38.33	16.89
22	30	UUNet Pipex	(0500) 474 739	9am-8pm Mon-Fri/Sat 10am-6pm	100.00	9.67	35.00	16.93
23	26	Discovery	(01203) 364 400	8.30am-5pm Mon-Fri	100.00	10.67	27.33	17.08
24	16	Maidenet	(01628) 825 757	9am-5pm Mon-Fri	100.00	11.33	27.33	17.11
25	54	Manx Computer Bureau	(01624) 623 841	9am-5.30pm Mon-Fri	100.00	11.00	30.67	17.13
26	10	Technocom	(01753) 714 200	9am-5.30pm Mon-Fri	90.48	9.67	23.67	15.59
27	32	Zen Internet	(01706) 713 714	9am-8pm Mon-Fri/10am-5pm w/e	100.00	9.33	34.33	17.42
28	N/A	Gates Net Communications	(0181) 561 5040	9am-10pm Mon-Sat	90.91	10.00	30.00	15.89
29	6	Dolphin Internet	(0181) 932 5000	24 hour pager service	100.00	10.33	53.00	17.81
30	N/A	Aviators Network	(01727) 868 468	24 hour callback	100.00	10.33	33.33	17.82
31	46	Oxford CommUnity Internet	(01865) 856 000	9am-6pm Mon-Fri	95.00	10.33	56.00	17.50
32	21	Avel PiP	(01752) 600 101	9am-6pm Mon-Fri	74.07	10.00	26.33	13.66
33	49	CIX	(0845) 355 5050	9am-midnight Mon-Fri/10am-6pm Sat	100.00	9.33	40.33	18.60
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- ✔ All Sportster Voice 33.6 modems purchased after 15th September 1996 are x2 chip upgradeable. Register on 0800 997777

For more information on our modems call: 0800 225252 For more information on Total Control Chassis or Courier I-modem contact Mark or Ben on 01753 7512004

U.S. Robotics TECHNOLOGY

U.S. Robotics Systems Division
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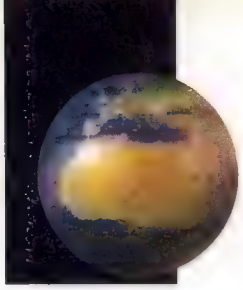

This month's best IAPs, as tested in Internet Magazine's labs (continued)

This	Last	Provider	Tel	Support	Availability (success rate)	Fastest Web speed (secs)	Slowest Web speed (secs)	Average Web speed (secs)
36	9	CYBERphile Internet	(01543) 454 840	8.30am-6.30pm Mon-Fri	95.45	8.67	75.67	18.71
37	36	Prestel Online	(0990) 223 300	24-hrs-a-day	100.00	11.00	48.33	19.81
38	42	Web Factory Leicester	(0116) 223 0070	9am-5pm Mon-Fri	100.00	9.00	61.00	19.85
39	50	AAP Internet	(0181) 427 1166	10am-8pm Mon-Fri 2pm-6pm w/e	100.00	12.33	35.67	19.96
40	20	Net Matters	(01502) 580 000	7.30am-8pm Mon-Fri/ 10am-8pm w/e	100.00	9.67	60.00	20.11
41	N/A	AIC Entanet	(01279) 865 290	9am-5pm Mon-Sat	100.00	11.67	45.67	20.19
42	44	Baynet	(01222) 256 401	8am-6pm Mon-Fri/9am-5.30pm Sat	84.00	9.33	30.00	16.96
43	11	NetDirect Internet	(0171) 732 3000	9am-7pm Mon-Fri/9am-5pm Sat	80.00	10.33	50.00	16.22
44	N/A	WSS Internet Access	(01793) 420 764	9am-5pm Mon-Fri	100.00	14.33	33.33	20.51
45	48	Internet Central	(01270) 611 000	9am-6pm Mon-Sat	100.00	10.00	89.67	21.20
46	2	Frontier Internet Services	(0171) 242 3383	9am-7pm Mon-Fri/12pm-6pm Sat	100.00	10.67	60.33	21.53
47	25	IFB/Wintermute	(01224) 333 300	9am-6pm Mon-Fri	71.43	9.33	39.67	15.92
48	34	BT Internet	(0800) 800 001	24-hrs-a-day	67.74	10.67	21.67	15.10
49	22	Netkonect	(0171) 345 7777	9am-6pm Mon-Fri	76.92	8.67	38.67	17.44
50	41	Poptel	(0171) 923 9465	9.30am-6pm Mon-Fri	90.48	10.00	79.67	20.59
51	40	REDNET	(01494) 511 640	9am-5.30pm Mon-Fri	83.33	9.67	57.33	20.85
52	N/A	DataNet	(01252) 810 081	24-hrs-a-day	94.12	10.33	102.00	24.12
53	23	Fast-Net Developments	(0161) 291 8330	24-hrs-a-day	91.30	12.33	88.00	23.73
54	39	Zynet	(01392) 209 500	9am-6pm Mon-Sat	100.00	9.67	113.67	27.03
55	47	Hiway	(01635) 567 200	8.30am-6pm Mon-Fri	91.30	13.33	46.67	26.18
56	8	Web Factory Head Office	(0116) 223 0070	9am-5pm Mon-Fri	61.54	9.67	38.33	17.88
57	37	Bogomip	(0800) 137 536	10am-8pm Mon-Fri/10am-5pm w/e	95.45	13.00	99.33	27.74
58	53	Sonnet Internet	(0116) 223 0070	9am-5pm Mon-Fri	79.17	13.33	51.00	23.38
59	N/A	iQ Internet	(01273) 327 088	9am-5.30pm Mon-Fri	88.24	11.00	120.33	26.79
60	17	I-Way	(0118) 958 0058	8.00am-6.30pm Mon-Fri	91.30	14.00	94.67	27.52
61	45	Pinnacle	(01473) 211 922	8am-9pm Mon-Sat/11am-7pm Sun	90.91	13.33	128.00	28.89
62	55	AngliaNet	(01473) 211 922	8am-9pm Mon-Sat/11am-7pm Sun	86.96	11.67	101.00	36.13
63	52	Abel Internet	(0131) 445 5555	9am-11pm every day	60.00	12.67	70.67	25.71
64	43	Legend Internet	(01274) 743 500	8am-8pm Mon-Sat	46.51	10.67	80.67	21.61

How the performance tests work

The Windows 95 tests have been going for more than six months and an ever-increasing number of IAPs now want to be included. The tests allow us to assess how easy it is to establish a connection (the availability figure) and also evaluate the performance of the service once the connection has been established (the average Web speed). The fastest and slowest speed figures reveal the fastest and slowest accesses to our test Web sites. Our modems log onto each access provider many times over the testing period (up to 25 April) and download pages from sites on the Internet.

In the tests this month, we looked at the following sites: the TUCOWS homepage **(www.tucows.com)**, a static page on the CNN Web site **(www.cnn.com)** and the LINX (London Internet Exchange) Web page **(www.linx.net)**.

In future, the tests will target various Internet Exchanges around the world which will really test out the IAP's international bandwidth – and, of course, will keep them on their toes.

The tests themselves have been made more sturdy, and the (rare) crashes now occurring are down to Windows 95, and the way it handles dial-up networking. Multiple machines will shortly be set up for the tests, to ensure that Windows' various stacks don't have to work too hard, and that the number of connections for each IAP can be increased dramatically.

To rank the IAPs, we've calculated the geometric mean of availability and average Web performance. Each of these results is made relative to the best performance available; this month those are 100 per cent for availability and 12.78 seconds for average Web performance.

Each of these results is considered equally important, so a provider with a slightly below par availability result, but a very fast average Web download speed (for example, Pavilion and impressive newcomer ClaraNet), will come out higher than a provider with 100 per cent availability but a slower average speed (for example, Frontier Internet Services and Zynet).

● The tests for this month were started the week beginning 7 April and ran until Friday 25 April.

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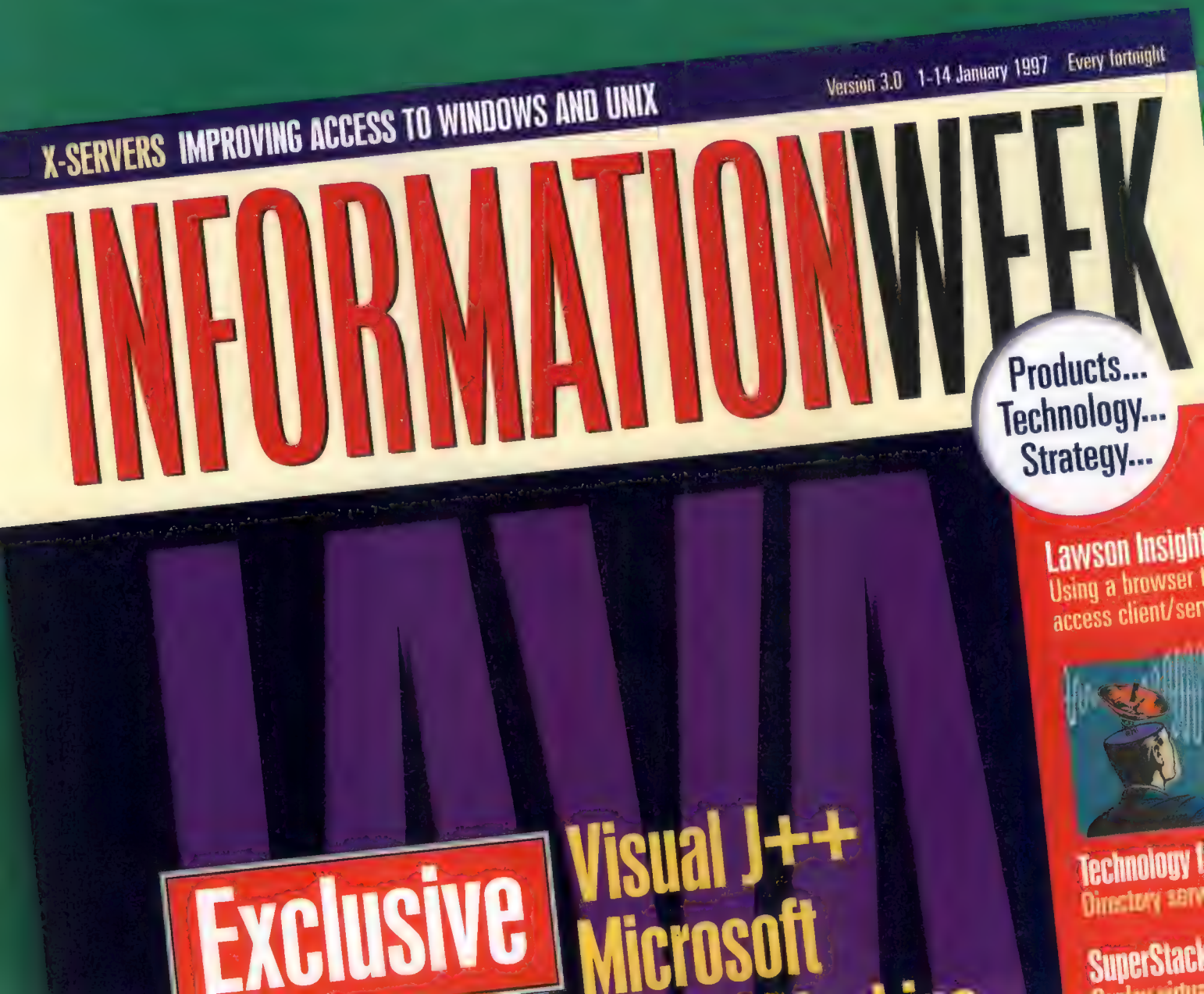


which prov

The most up-to-date information is vital when you're choosing from the hundreds of Internet access providers. You'll find no better guide than our exclusive Which Provider section.

Acquisitions and mergers
The big news this month is that ITG, whose principal trading subsidiary is Global Internet, has bought backbone provider Xara Networks. The deal is worth £2.65 million. The acquisition moves ITG into the lucrative corporate market and means it's providing Net connectivity to 37,000 dial-up users.

ITG's Chief Executive, Laurence Blackall, is excited by the deal. "It has always been a strategic objective of ITG to win a significant share of the lucrative business Internet market. With Xara Networks, that objective can now be swiftly realised," he says.

New IAPs and dial-up services
This month sees the usual spate of new IAPs. Force 9 is a new national service, offering a monthly connection for £7 with 5Mb of Web space thrown into the deal. Meanwhile, Powernet Gateway is offering accounts for £15 per month.

On a local level, INTERact offers residents of London and the South East a £4 per month service, while Plymouth-based SWIS is offering a £15 per month account.

Prestel On-line is offering a new dial-up package which includes 10Mb of Web space for £9.99 a month. The price also includes 24-hour, 365-day-a-year technical support and unlimited email addresses.

Easynet gets higher bandwidth
Easynet has announced an agreement with Teleglobe International which gives it access to Teleglobe's Globesystem Atlantic 155Mb transatlantic bandwidth. Initially, the company will take a 2Mb line. "We chose Teleglobe for this expansion because it provides a dedicated intercontinental transit network, and so doesn't suffer from domestic US congestion," said Grahame Davies, Easynet's MD.

Web page developments
If you're having trouble setting up your site, check out Planet Online's range of Web page templates. There are three standard templates which can be tailored to include your corporate colours and logo.

Latest subscriber figures
Direct Connection is now claiming 18,500 dial-up users. The company is at pains to stress that these figures don't include customers on free trials.

Updates
- PSINet has terminated its consumer service, Pipeline, to concentrate exclusively on the corporate market.
- Pipemedia OnLine has gone national and is offering free Web space, free softwarwe and 24-hour technical support.
- Zynet has joined forces with cable telcommunications company, Eurobell, but will continue to support its Internet connections. Existing customers will get 3Mb of personal Web space but otherwise it's business as usual.
- Water Skier Software has changed its name to WSS Internet Access.
- @pobox now provides local rate dial-up accounts nationally.

If you have any IAP news please email us at **providers@internet.emap.com**. If you want to find out which IAPs have the most subscribers visit the Internet Marketing Hotlist at **www.emap.com/internet/hot/**

How to choose an IAP

Until some enterprising telecommunications company follows the US route and offers free local calls, one of the most important considerations when choosing an access provider will be your phone bill. Make sure you go for an IAP which offers local-call access to the Internet.

How the IAPs charge

Most providers offer unlimited access for a flat monthly fee, but others, like AOL and CompuServe, charge by the hour. This can be a cheaper option if you're not expecting to be online much during a month, but otherwise can soon add up.

When the chips are down...

Another important consideration, especially if you're new to the Internet, is technical support. Historically, the quality of support offered by many companies has been atrocious, but some are starting to give a much better service. Don't think they're being charitable, though! They have an obligation to ensure you're entirely happy with the service, and they know there are plenty of other service providers willing to take over if they don't meet your expectations.

Before signing up with an IAP, call its support number at different times of the day to see how easy it is to get through. Although some companies may advertise a round-the-clock service, it's not much use if there's only one person answering the phone.

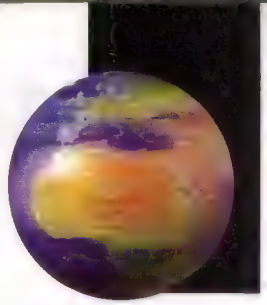
And once you're online, let us know! Test your account by sending a message to: **newusers@computing.emap.co.uk**.

We'll send a friendly reply-by-return so you know that your account is running as it should.

Backbone providers

IAPs buy access to the Internet in the same way you do. The only difference is that they pay for big direct connections. Your IAP's backbone determines the quality of your connection and the ability of your IAP to expand its bandwidth, so check it out before signing up.

vider?



The most comprehensive listing of UK access providers available

Name	Telephone	Email	Web page	Cost (pm)	Backbone
Full UK coverage					
AAP Internet	(0181) 427 1166	sales@aapi.co.uk	www.aapi.co.uk	£8.51	Netkonect
Abel Internet	(0131) 445 5555	info@abel.net.uk	www.abel.net.uk	£7.50	BTnet
ACE	(01670) 528 204	info@ace.co.uk	www.ace.co.uk	£10	Planet
Airtime Internet Resources	(01254) 676 921	sales@airtime.co.uk	www.airtime.co.uk	£13	Pipex
Aladdin	(01489) 782 221	info@aladdin.co.uk	www.aladdin.co.uk.	LLO	Xara
Almac	(01324) 666 336	info@almac.net	www.almac.net	from £5	BTnet
AOL	(0800) 279 1234	queryuk@aol.com	www.uk.aol.com	from £5.95	AOL
Astra Internet	(0800) 018 2001	sales@astra.co.uk	www.astra.co.uk	£11	Xara
AT&T	(0171) 345 4000	info@uk.pi.net	www.uk.pi.net	£7.99	BTnet
Atlas	(0171) 312 0400	info@atlas.co.uk	www.atlas.co.uk	£12	PSInet
Avel PiP	(01752) 600 101	info@avel.co.uk	www.avel.com	£12	Pipex/Xara
Aviators Network	(01727) 868 468	info@avnet.co.uk	www.avnet.co.uk	£10	PSInet
Baynet	(01222) 256 401	enq@baynet.co.uk	www.baynet.co.uk	£12	Netkonect
Beacon Internet Services	(01749) 831 056	sales@thebeacon.co.uk	www.n-e-t.co.uk/beacon/	£12	NetOnline
BT Internet	(0800) 800 001	support@btinternet.com.	www.btinternet.com	£11.75*	BTnet
BusinessNet	(0171) 390 9933	sales@business.net.uk	www.business.net.uk	ISDN/LLO	BusinessNet
Cable Internet	(0500) 541 542	sales@cableinet.co.uk	www.cableinet.co.uk	£10.99	Cable Internet/ISPC
Cable Online	(0800) 506 506	info@cableol.co.uk	www.cableol.net	£14.95	Cable Online
CD-Online	(0171) 436 8677	info@cd-online.co.uk	www.cd-online.co.uk/pc	£12	Pipex
Celtic International	(01222) 488 555	sales@celtic.co.uk	www.celtic.co.uk	£15	Cymru.net
Cerbernet	(0171) 360 8000	sales@cerbernet.co.uk	www.cerbernet.co.uk	£12	Wisper
CityScape Global Media	(01223) 566 950	sales@cityscape.co.uk	www.cityscape.co.uk	£15	Demon
Cityway Internet	(0181) 930 6666	info@cityway.com	www.cityway.com	£12.75	Pipex
CIX	(0845) 355 5050	sales@cix.net.uk	www.cix.net.uk	from £6.25	BTnet
ClaraNET	(0171) 647 1000	sales@clara.net	www.clara.com	from £3.99	Netkonect
Cocoon Internet Services	(0171) 831 7704	admin@cocoon.co.uk	www.cocoon.co.uk	£15	Pipex
Colloquium	(0500) 008 543	sales@colloquium.co.uk	www.colloquium.co.uk	£12	Pipex
CompuServe	(0800) 289 378	70006.101@compuserve.com	www.compuserve.com	from £6.50	CompuServe
CPD Online	(0181) 446 7890	sales@cpd.co.uk	www.cyberspace.cpd.co.uk	£12	Nildram
CYBERphile Internet	(01543) 454 840	info@cyberphile.co.uk	www.cyberphile.co.uk	£9.99	Xara
Cyberscape	(01253) 724 000	glenn@cyberscape.net	www.cyberscape.net	£12	Cable Internet/ISPC
Datanet	(01252) 810 081	info@data.net.uk	www.data.net.uk	£12.50	Planet Online
Demon Internet	(0181) 371 1234	sales@demon.net	www.demon.net	£10	Demon
DIALnet	(0800) 881 881	sales@dialnet.com	www.dialnet.com	from £9	Cable Internet
Direct Connection	(0181) 297 2200	helpdesk@dircon.net	www.dircon.net	£11.49	BTnet/Pipex
Direct Net @ccess	(01232) 330 311	info@d-n-a.net	www@d-n-a.net	£7.50	Xara
Easynet	(0171) 681 4444	postbox@easynet.net	www.easynet.co.uk	from £9.90	Easynet/BTnet
EDI	(01539) 731 000	info@edi.co.uk	www.edi.co.uk	£15	Planet Online
ElectricMail	(01223) 501 333	info@elmail.co.uk	www.elmail.co.uk	ISDN/LLO	PSInet
Entanet	(0500) 368 2638	info@enta.net	www.enta.net	£9	VBCnet
Enterprise	(01624) 677 666	sales@enterprise.net	www.enterprise.net	£8	BTnet
Epinet	(01242) 821 000	info@epinet.co.uk	www.epinet.co.uk	£8.25	Xara/Energis
Fast-Net Developments	(0161) 291 8330	enquiry@sales.fast-net.co.uk	www.fast-net.co.uk	£12.50	Planet
Force 9	(01909) 531 923	sales@force9.net	www.force9.net	£7	Force9
Fourth Level Developments	(0117) 985 4455	sales@flevel.co.uk	www.flevel.co.uk	£10	Technocom
Frontier Internet Services	(0171) 242 3383	info@ftech.net	www.ftech.net	£10	Xara
Gates Net	(0181) 561 5040	sean@gates.co.uk	www.gates.co.uk	£8.30	Netkonect
Global Internet	(0181) 957 1008	info@globalnet.co.uk	www.globalnet.co.uk	£7.50	BTnet and Sprint
GreenNet	(0171) 713 1941	support@gn.apc.org	www.gn.apc.org	£13.50	Pipex
Hi-Net	(0181) 532 6532	internet@higrade.com	www.hi-net.co.uk	£11.75*	Planet Online
Hiway	(01635) 567 200	info@inform.hiway.co.uk	www.hiway.co.uk	£12.75	Aladdin
IBM Global Services	(0990) 426 426	globalnetwork@uk.ibm.com	www.ibm.net	from £10	IBM Global Network
IFB - Wintermute	(01224) 333 300	info@wintermute.co.uk	www.wintermute.co.uk	£12.50	BTnet/Wisper
Impact Web Publishing	(01628) 522 099	nikki@impactwp.com	www.impactwp.com	LLO	Xara
Internet Discovery	(0181) 694 2240	sales@idiscover.co.uk	www.idiscover.co.uk	£10	Pipex/VBCnet
Internet Network Services	(0181) 296 9201	info@insnet.net	www.insnet.net	LLO	INS
Internexus Communications	(01254) 699 030	postmaster@mail.internexus.co.uk	www.internexus.co.uk	£8.06	Xara
Intonet	(01932) 828 333	hq@intonet.co.uk	www.intonet.co.uk	£8.50	BTnet
IQ Internet	(01273) 327 088	sales@iql.co.uk	www.iql.co/uk	£9.99	Planet Online
ISPC	(01628) 395 95	barryr@ispc.net	www.ispc.net	ISDN/LLO	Cable Internet/ISPC
Karoo	(01482) 602 742	info@karoo.net	www.karoo.net	£8.33	Planet Online
LineOne	(0345) 777 464	enquiries@LineOne.net	www.LineOne.net	from £9.95	BTnet
M.I.T.E	(0181) 881 2111	sales@mite.net	www.mite.net	£10	M.I.T.E

If you work for a provider that's not listed here send the details to: providers@internet.emap.com

Key: LLO – leased line only ISDN/LLO – ISDN & leased line only * – inc VAT ** – annual price inc VAT

The most comprehensive listing of UK access providers available

Name	Telephone	Email	Web page	Cost (pm)	Backbone
Full UK coverage (continued)					
MacLine	(0181) 401 1111	orders@macline.co.uk	www.macline.co.uk	£12	Atlas
Mainstream Technology	(0345) 626 177	sales@mainstream.u-net.com	none	£169.20 pa	U-Net
Mercia Internet	(01827) 69166	sales@mercia.net	www.mercia.net	£11.50*	Netkonect
MetroNet	(0181) 426 4446	bindu@metronet.co.uk	www.metronet.co.uk	£29.99 pq	INS
Mistral Internet	(01273) 747 432	info@mistral.co.uk	www.mistral.co.uk	£9.99*	BTnet
MSN	(0345) 002 000	ukweb@microsoft-contact.co.uk	www.uk.msn.com	from £4.95	Pipex
NACAMAR	(01438) 715 100	info@nacamar.net uk	www.nacamar.co.uk	LLO	NACAMAR
Net Online	(0171) 447 7447	sales@nol.co.uk	www.nol.co.uk	£15	Net Online
Net UK	(01242) 821 000	info@netuk.co.uk	www.netuk.co.uk	£8.25	Xara
Net Village	(0181) 255 6777	info@netvillage.co.uk	www.netvillage.co.uk	£11.99	Planet Online
Netcom Internet	(01344) 395 600	info@netcomuk.co.uk	www.netcom.net.uk	£14.95*	Netcom
NetDirect Internet	(0171) 732 3000	info@ndirect.co.uk	www.ndirect.co.uk	£6.99	BTnet
NetHead	(0171) 207 1100	sales@nethead.co.uk	www.nethead.co.uk	£9.39*	BTnet
Netkonect	(0171) 345 7777	info@netkonect.net	www.netkonect.net	£11.75*	Netkonect
NetMatters	(01502) 580 000	info@netmatters.co.uk	www.netmatters.co.uk	£10	VBCnet
Nettec	(0171) 460 0500	info@nettec.co.uk	www.nettec.co.uk	£12.50	Xara
Neural Advantage	(01707) 390 839	neural.advantage@wta.net	www.wta.net/uk/computer.services/neural.advantage/	ISDN/LLO	Netkonect
Nildram	(01442) 891 331	sales@nildram.co.uk	www.nildram.co.uk	£5	Netkonect
On-Line Entertainment	(0181) 558 6114	sysop@mail.on-line.co.uk	www.on-line.co.uk	£5	Pipex
On-Net	(0181) 256 9999	sales@on-net.co.uk	www.on-net.co.uk	ISDN/LLO	On-Net
Onyx	(0345) 715 715	sales@onyxnet.co.uk	www.onyxnet.co.uk	£10	Onyx Internet
Oxford CommUnity Internet	(01865) 856 000	sales@community.co.uk	www.community.co.uk	£42 pq	Octacon
Paragon Software	(01635) 861 111	paragon@parasoft.co.uk	www.parasoft.co.uk	£11.50	Pipex
Paston Chase	(01603) 502 061	sales@paston.co.uk	www.paston.co.uk	£10	Pipex
PC User Group	(0181) 930 6699	info@win-uk.net	www.ibmpcug.co.uk	£15	Pipex
Pinnacle Internet	(01293) 613 686	info@pncl.co.uk	www.pncl.co.uk	£14.50	Pipex
Pipemedia OnLine	(01455) 292 990	sales@pipemedia.net	www.pipemedia.net	£10	VBCnet
Planet Online	(0113) 234 5566	info@theplanet.uk	www.theplanet.net	ISDN/LLO	Planet Online
@pobox	(0990) 168 160	info@pobox.co.uk	www.pobox.co.uk	£10	INSnet
Poptel	(0171) 923 9465	info@poptel.net	www.poptel.org.uk	£10	Xara
Powernet Gateway	(0500) 778 865	info@rpoll.powernet-int.co.uk	www.powernet-int.co.uk	£15	Planet Online
Premier Internet	(0181) 213 1710	info@premier.co.uk	www.premier.co.uk	£10	BTnet/Sprint
Prestel Online	(0990) 223 300	priority@netsales.prestel.co.uk	www.prestel.co.uk	£10.56*	Planet Online
Primex	(07000) 774 639	info@alpha.primex.co.uk	www.primex.co.uk	from £6.50	On-Net/Netkonect
ProWeb	(0500) 636 343	sales@proweb.co.uk	www.proweb.co.uk	from £8*	Cable Internet
PSI Net UK	(01223) 577 577	sales@uk.psi.com	www.uk.psi.com	ISDN/LLO	PSI Net
Quza	(0800) 528 0000	info@quza.com	www.quza.com	ISDN/LLO	Quza
R.B.R Group	(01285) 647 000	info@star.co.uk	www.star.co.uk	£12	BTnet/Wisper
REDNET	(01494) 511 640	info@red.net	www.rednet.co.uk	£15	Pipex/INS
Relay Business Systems	(0345) 369 999	enquiries@relay.co.uk	www.relay.co.uk	£19	BTnet
Research Machines	(01235) 826 868	sales@rmplc.co.uk	www.rmplc.co.uk	£12.50	Xara
SAQ Network Services	(0800) 801 514	sales@saqnet.co.uk	www.saqnet.co.uk	£10.64	BTnet/C&W/INS
Scotland Online	(0845) 270 0027	admin@sol.co.uk	www.scotland.net	£10	Sprint
Small Planet	(0171) 515 9889	admin@smallplanet.co.uk	www.smallplanet.co.uk	ISDN/LLO	BTnet
Smartways Internet	(01604) 670 500	info@smartways.com	www.smartways.com	£15	Wisper
Sonnet Internet	(0171) 891 2000	enquire@sonnet.co.uk	www.sonnet.co.uk	£12.50	Xara
SOS Internet	(01271) 321 145	sosi@sosi.net	www.sosi.net	£15	Aspen
Star Internet	(01285) 647 022	info@star.co.uk	www.star.co.uk	ISDN/LLO	BTnet/Wisper
Technocom	(01753) 714 200	isales@technocom.co.uk	www.technocom.co.uk	£12	Technocom
The Network Group	(01703) 452 409	info@network-group.com	www.network-group.com	£15	Pipex
The Web Factory	(01782) 858 585	sales@webfactory.co.uk	www.webfactory.co.uk	from £12.50	The Web Factory
Timewarp Internet	(0161) 950 8855	sales@timewarp.co.uk	www.timewarp.co.uk	£10	ISPC
Total Connectivity Providers	(01703) 571 300	sales@tcp.co.uk	www.tcp.co.uk	from £25.50 pq	VBC/Wisper
U-Net	(01925) 484 444	hi@u-net.com	www.u-net.net	£12	U-Net
UK Online	(01749) 333 333	sales@ukonline.co.uk	www.ukonline.co.uk	£9.99	BTnet
UUnet Pipex	(0500) 474 739	support@dial.pipex.com	www.uunet.pipex.com	£15	Pipex
VBCnet	(0117) 929 1316	sales@vbc.net	www.vbc.net	LLO	VBCnet
Virgin Net	(0500) 558 844	mail-hq@virgin.net	www.virgin.net	£6 or £10	Cable Online
Webscape	(01935) 814850	webmaster@webscape.co.uk	www.webscape.co.uk	£10	Xara
Which? On-line	(0645) 830 240	ogunlarur@which.co.uk	www.which.net	£14.75	Cable Online
WinNet	(0181) 930 6699	info@win-uk.net	www.win-uk.net	£6.75	Pipex
Wirenet Amiga	(01925) 496 482	sales@wirenet.u-net.com	www.wirenet.u-net.com	£115**	U-Net
WiSS	(01248) 602 405	enquiries@wiss.co.uk	www.wiss.co.uk	£11.75	Celtic Internet
Xara Networks	(01442) 351 100	sales@xara.net	www.xara.net	LLO	Xara
Zetnet Services	(01595) 696 667	info@zetnet.co.uk	www.zetnet.co.uk	£7.50*	BTnet/ Wisper
Zoo	(0345) 326 326	support@zoo.co.uk	www.zoo.co.uk	£6.99	Zoo
Zynet	(01392) 209 500	sales@zynet.net	www.zynet.co.uk	£10	Xara

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Name	Telephone	Email	Web page	Cost (pm)	Backbone
East					
AngliaNet	(01473) 211 922	login@anglianet.co.uk	www.anglianet.co.uk/anglianet	£11.75*	Wisper/BTnet
Cyber Ware	(01733) 765 005	webmaster@cyberware.co.uk	www.cyberware.co.uk	£9.99*	BTnet
Foobar Internet	(0116) 233 0033	sales@foobar.co.uk	www.foobar.co.uk	£10	Netkonect
Ke-Connect Internet Services	(01449) 770 488	info@keme.net	www.keme.co.uk	£10	Wisper
Merlin Internet	(01724) 276 860	info@merlin.net.uk	www.merlin.net.uk	£15	Hypergrid
Net Solutions Europe	(01255) 233 300	ScottC@nse.co.uk	www.nse.co.uk	£15	Technocom
RJT Internet Services	(01493) 857 048	postmaster@rjt.co.uk	www.rjt.co.uk	£7.99	BTnet
Ireland					
Creative Online Media	(01232) 370 124	john@globalgateway.com	www.globalgateway.com	£9.95	PSInet
Gateweb	(01232) 666 850	gateweb@gateweb.co.uk	www.gateweb.co.uk	£10	BTnet
Genesis Project	(01232) 560 552	sales@gpl.net	www.gpl.net	£10	VBCnet
Ireland On-Line	(00353) 1 855 1739	sales@iol.ie	www.iol.ie	IR£10	Pipex
The Internet Business	(01232) 424 190	info@tibus.net	www.tibus.net	£10	BTnet
Unite Solutions	(01232) 668 406	solutions@unite.co.uk	www.unite.co.uk	£12.50	BTnet
London and South East					
Adept	(01843) 850 444	sales@adept.co.uk	www.adept.co.uk	£10	Netkonect
Amity Internet	(0500) 200 171	info@amity.co.uk	www.amity.co.uk	£9.90	BTnet
Bogomip	(0800) 137 536	info@mail.bogo.co.uk	www.bogo.co.uk	£12	BTnet
Boots Internet	(01462) 743 112	support@boots.com	www.boots.com	£12.75	VBC Net
CableNet	(01424) 830 700	info@cablenet.net	www.cablenet.net/cablenet	from £2.95	VBCnet
CentreNET	(0800) 243 336	centrenet-info@innicta.co.uk	www.innicta.co.uk/centrenet	£12.95	BTnet
ComeNet Technology	(0181) 357 9111	sales@come.net.uk	www.come.net.uk	from £7.80	Pipex/VBCnet
Cygnet Internet Services	(0181) 880 4650	info@cygnet.co.uk	www.cygnet.co.uk	£8	Pipex
Dolphin Internet	(0181) 932 5000	info@dolphinet.co.uk	www.dolphinet.co.uk	£12	BTnet
Exconet	(01268) 453 000	sales@exconet.co.uk	www.exconet.co.uk	£10	Nildram
ExNet Systems	(0181) 296 5577	info@exnet.com	www.exnet.com	£12	VBCnet
FastNet International	(01273) 677 633	info@fastnet.co.uk	www.fastnet.co.uk	£30 pq	VBCnet
FlexNet	(01638) 711 550	info@flexnet.net	www.flexnet.co.uk	£10	Netcom
I-Way Brentford	(0181) 758 0058	sales@brentford.i-way.net.uk	www.i-way.co.uk	£10	VBCnet/Pipex
I-Way Oxford	(01865) 200 788	sales@oxford.i-way.net.uk	www.i-way.co.uk/oxford	£30 pq	VBCnet/Pipex
I-Way Reading	(0118) 958 0058	sales@i-way.net.uk	www.i-way.net.uk	£10	VBCnet/Pipex
I-Way Soho	(0171) 734 5734	sales@soho.i-way.net.uk	www.i-way.co.uk	ISDN/LLO	VBCnet/Pipex
KBnet	(01234) 271 900	sales@kbnet.co.uk	www.kbnet.co.uk	£12.93*	Cabletel
KENTnet Internet Services	(01622) 688 748	sales@kentnet.co.uk	www.kentnet.co.uk	£10.50	BTnet
London Internet	(0171) 838 1199	s.ken l@dialin.net	www.london-internet.net	£10	Aspen
London Web Communications	(0181) 349 4500	nicky@londonweb.net	www.londonweb.net	£12.50	Netkonect
Maidenet	(01628) 825 757	enquires@maidenet.co.uk	www.maidenet.co.uk	£15.00	BTnet
Mailbox Internet	(0171) 731 8558	info@mailbox.co.uk	www.mailbox.co.uk	£10	BusinessNet
Mitoo	(0171) 209 1515	sales@mitoo.co.uk	www.mitoo.co.uk/	ISDN/LLO	BTnet
Moose	(01923) 238 248	info@moose.co.uk	www.moose.co.uk	£10	BTnet
NetForce Group	(01245) 257 788	sales@netforce.net	www.netforce.net	£15	Pipex
Netmania	(0181) 252 1199	info@netmania.co.uk	www.netmania.co.uk	£25.85 pa	BTnet
Paradise Internet Network	(01256) 414 863	sales@pins.co.uk	www.pins.co.uk/	£8	INS net
Pavilion Internet	(01273) 607 072	info@pavilion.co.uk	www.pavilion.co.uk	£12.55	Easynet/BTnet
Pro-Net Internet Services	(0181) 200 3565	sales@pro-net.co.uk	www.pro-net.co.uk	£99 pa	Cable Internet/ISPC
Star 1 Internet Services	(0171) 738 2251	sales@star1.co.uk	www.star1.co.uk	£8	BTnet
Surflink	(0800) 243 777	info@surflink.co.uk	www.surflink.co.uk	£6.99	BTnet
Surrey Internet	(01483) 860 606	office@surrey-net.co.uk	www.surrey-net.co.uk	£12.50	Surrey Internet
SWS Internet	(01483) 851 049	swsnet@k1245.demon.co.uk	none	£20	Demon
Thames Global Internet Services	(01344) 641 627	info@tgis.co.uk	www.tgis.co.uk	£8.50	Cable Internet/ISPC
The Web Factory (London)	(0171) 637 0310	sales@weblondon.co.uk	www.weblondon.co.uk	from £12.50	The Web Factory
Vodanet	(01708) 863 043	ops.manager@dialin.net	www.vodanet.net	£12.99	Aspen
VossNet	(01753) 737 800	info@vossnet.co.uk	www.vossnet.co.uk	£10	Cable Internet/ISPC
Wisper	(0171) 581 3222	sales@wisper.net	www.wisper.net	LLO	Wisper
INTERact	(01753) 776 699	sysop@uv.net	www.uv.net	£4.00	Cable Internet/ISPC
Midlands					
Brunel Internet	(01922) 598 90	sales@brunel.co.uk	www.brunel.co.uk	£12.50	BTnet
Darian Technologies	(0121) 693 9955	darian@custard.co.uk	www.custard.co.uk	£50	Cable Internet/ISPC
Discovery	(01203) 364 400	invent@discover.co.uk	www.discover.co.uk	£10	Technocom
Fenetre	(01538) 398 298	sales@fenetre.co.uk	www.fenetre.co.uk	£8	BTnet
GMTnet	(01509) 269 999	sales@gmtnet.co.uk	www.gmtnet.co.uk	£10	BTnet
Griffin Internet	(01332) 606 160	info@griffin.co.uk	www.griffin.co.uk	£12.50	Xara Networks
Internet Access	(01536) 414 424	mailus@intac.co.uk	www.intac.co.uk	£120 pa	BTnet
InterNet UK	(01827) 713 679	sales@zipmail.co.uk	www.zipmail.co.uk	£10	Wisper
MBC Internet Services	(01902) 651 111	info@mbcis.co.uk	www.mbcis.co.uk	£12	Wave Rider
Northants Computer Centre	(01604) 22539	tony@nccnet.co.uk	www.nccnet.co.uk	£10	Cable Internet/ISPC
Oxford CommUnity Internet	(01865) 856 000	info@community.co.uk	www.community.co.uk	£37.50 pq	Onyx
Power Internet	(01908) 503 126	info@powernet.co.uk	www.powernet.co.uk	£12	BTnet

which provider?

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Name	Telephone	Email	Web page	Cost (pm)	Backbone
Midlands (continued)					
Skynet Internet Services	(01604) 432 345	sales@skynet.co.uk	www.skynet.co.uk	£10	Cable Internet/ISPC
Stayfree Internet	(0116) 291 0999	sales@stayfree.co.uk	www.stayfree.co.uk	£5.88*	Wisper
The Internet in Nottingham	(0115) 956 2222	info@innotts.co.uk	www.innotts.co.uk	£14.69	Aladdin
The Web Factory (Birmingham)	(0121) 628 6666	sales@webbirmingham.co.uk	www.webbirmingham.co.uk	from £12.50	The Web Factory
The Web Factory (Derby)	(01332) 733 233	sales@webderby.co.uk	www.webderby.co.uk	from £12.50	The Web Factory
The Web Factory (Leicester)	(0116) 223 0070	nick@webleicester.co.uk	www.webleicester.co.uk	from £12.50	The Web Factory
Wave Rider Internet	(01543) 705 888	info@waverider.net.uk	www.waverider.net.uk	£12	VBCnet
Webtronix	(0115) 956 8823	sales@webtronix.co.uk	www.webtronix.co.uk	£12.50	Aladdin
WildNET	(01604) 365 600	stuartj@wildnet.co.uk	www.wildnet.co.uk	£10	Cable Internet/ISPC
Woden Network Systems	(0121) 530 4900	derek@woden.com	www.woden.com	£10	VBCnet
Computalynx	(01604) 231 437	sales@computalynx.co.uk	www.computalynx.co.uk	£10	Cable Internet/ISPC
Wyenet Internet Services	(01989) 762 476	richard@wyenet.co.uk	www.wyenet.co.uk	£12	Cable Internet/ISPC
North East					
FirstNet Services	(0113) 394 4224	sales@firstnet.co.uk	www.firstnet.co.uk	£12.50	Energis
Legend Internet	(01274) 743 500	sales@legend.co.uk	www.legend.co.uk	£12.50	Sprint
North West					
Cybase	(0151) 227 4244	sales@mail.cybase.co.uk	www.cybase.co.uk	£10	Cable Internet/ISPC
Freeway Internet	(01204) 431 313	sales@freeway.co.uk	www.freeway.co.uk	£139.95 pa	VBCnet
Internet Central	(01270) 611 000	sales@netcentral.co.uk	www.netcentral.co.uk	£10	Cable Internet/ISPC
Kaleida	(0161) 291 1525	dale@kaleidanet.com.	www.kaleidanet.com	£10	Wisper
Kendal Computer Centre	(01539) 722 559	sales@kencomp.com	www.kencomp.com	£12.50	Aspen
Lakesnet	(01539) 731 888	info@lakesnet.co.uk	www.lakesnet.co.uk	£15	Planet Online.
Manx Computer Bureau	(01624) 623 641	postmaster@mcb.net	www.mcb.net	£8	BTnet
North-West Net	(0161) 950 7777	sales@nwnet.co.uk	www.nwnet.co.uk	£8.51	Cable Internet/ISPC
RapidNet	(0151) 722 0304	sales@rapid.net.uk	www.rapid.net.uk	£12*	Cable Internet
Talk 101	(01925) 245 145	sales@mail.talk-101.com	www.talk-101.com	£10	Wisper
The Internet Shop Ramada	(01253) 293 136	black-admin@blackpool.net	www.blackpool.net	£12.99	Aspen
UK Internet Provider	(01772) 908 000	internet@provider.co.uk	www.provider.co.uk	£12	Cable Internet/ISPC
Zen Internet	(01706) 713 714	sales@zen.co.uk	www.zen.co.uk	£10	BTnet
Scotland					
Ednet	(0131) 466 7003	info@ednet.co.uk	www.ednet.co.uk	£10	BTnet
Foremost Training	(01421) 566 6377	sales@scotnet.co.uk	www.scotnet.co.uk	£10	Wisper
The Internet Shop	(01355) 276 600	enquiries@inter-s.co.uk	www.inter-s.co.uk	£7.95	BTnet
The Web Factory (Scotland)	(0141) 418 0888	sales@webscotland.co.uk	www.webscotland.co.uk	from £12.50	The Web Factory
TweedNet	(01573) 430 216	mike@scotborders.co.uk	www.calligrafix.co.uk	£15	Scottish Telecom
South Central					
Andover On-line	(01264) 334 822	info@andover.co.uk	www.andover.co.uk	£12	Xara
Athene Internet	(01329) 828 000	jdyer@athene.co.uk	www.athene.co.uk	£10	Wisper
Bournemouth Internet	(01202) 292 900	office@bournemouth-net.co.uk	www.bournemouth-net.co.uk	£15	Aladdin
CintraNet	(01703) 571 000	accounts@cintranet.co.uk	www.cintranet.co.uk	£11.75*	Cable Internet/ISPC
Dart Net	(01794) 512 505	sales@dartnet.co.uk	www.dartnet.co.uk	£8.50	BTnet
Interalpha	(01703) 363 200	enquiry@interalpha.co.uk	www.interalpha.net	£15	Aladdin
LDS Technology	(01202) 659 991	sales@lds.co.uk	www.lds.co.uk	£14.99	BTnet
NewNet	(01705) 647 400	sales@newnet.co.uk	www.newnet.co.uk	£5.88	BTnet
SWIS	(01752) 228 700	swis@swis.co.uk	www.swis.net	£15	Xara
South West					
Abling.co.uk	(01823) 353 771	info@abling.co.uk	www.abling.co.uk	£9.95	INSnet
Aspen Internet	(01672) 511 388	admin@aspen-internet.net	www.aspen-internet.uk	£10	VBCnet & Aladdin
City Netgates	(0117) 907 4000	info@netgates.co.uk	www.netgates.co.uk	from £9.79	Wisper
Dataday Computers	(01793) 512 074	sw-1@cccp.net	www.dataday.co.uk	£12	Aspen
Dorset Internet	(01202) 659 991	sales@lds.co.uk	www.lds.co.uk	£14.99	Pipex/BTnet
Eclipse Networking	(01392) 424 446	eclipse@eclipse.co.uk	www.eclipse.co.uk	£8	EUnet
Gifford Internet Services	(0117) 939 7722	admin@gifford.co.uk	www.gifford.co.uk	£8.50	VBCnet
I-Way Swindon	(01666) 860 100	sales@swindon.i-way.net.uk	www.i-way.net.uk/swindon	£10	VBCnet/Pipex
Round One Media	(01237) 425 100	info@rom.net	www.rom.net	£8.33	Telehouse
Surfers Paradise	(01635) 569 123	brian@surfersparadise.net	www.surfersparadise.net	£12	Aspen
Swank & Swagger	(0117) 939 3995	swagger@swagger.co.uk	www.swagger.co.uk	£10	BTnet
West Dorset Internet	(01305) 871 543	tim@wdi.co.uk	www.wdi.co.uk	£15	BTnet
WSS Internet Access	(01793) 426 764	info@WSkiSoft.co.uk	www.WSkiSoft.co.uk/ISPUser/	£9.99*	Pipex
Wales					
Cyberstop Interent Services	(01792) 465 950	internet@cyberstop.co.uk	www.cyberstop.net	£12	Aspen
Dean Software	(01978) 311 044	info@deansoft.celtic.co.uk	www.deansoft.com	£10	EUnet
Relay	(01224) 484 449	enquiries@netwales.co.uk	www.netwales.co.uk/	£10	BTnet
Telecall	(0117) 941 4141	sales@telecall.co.uk	www.telecall.co.uk	£10	BTnet/Wisper
Vapro-Llanelli's Cybercafé	(01554) 749 300	vapro.sales@vapro.net	www.vapro.net	£12	Aspen

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smiley culture

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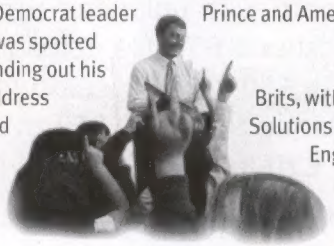
A round-up of this month's idiotic, esoteric, eclectic and entertaining stories from the Web...

Paddy gets personal

Proof that this election campaign was the first to be fought online comes from the key marginal of Torquay. Liberal Democrat leader Paddy Ashdown was spotted there recently handing out his personal email address – the better to field questions from members of the great unwashed who have made it online.



Too much porn for Larry

America's pornographer-in-chief Larry Flynt – fresh from his screen portrayal at the hands of Woody Harrelson – has been getting all hot under the collar about the Internet. In fact, he's not happy at all. The reason? He blames the declining sales of his, ahem, gentlemen's magazine, *Hustler*, not on the puritanical rise of America's moral majority, but on the availability of porn online. "If you cruise the Net and see everything that's available, it's glutted," says the disgruntled porn baron.

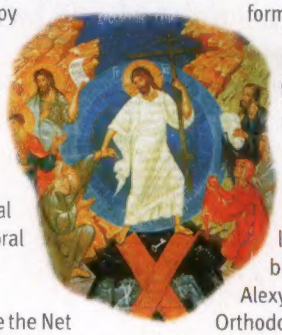
The Cocaine home page

It has come to the attention of ***Internet Magazine***, during an extensive trawl through sites for this month's Site Surveyor section, that if you casually type in the URL **www.cocaine.com**, you're worryingly 'redirected' to the Office of the Director of Central Intelligence's Web site, with links to the CIA, the Unites States Intelligence Community and the Centre for the Study of Intelligence. Hmm.

The prince of the Net

The domain-name dispute between British computer training company Prince and American sports group Prince ended nastily for the Brits, with Network Solutions stripping the English company of the domain prince.com in favour of the US trademark holder, probably in a vicious payback for all those Hugh Grant movies.

Still, Andrew Prince, the UK Prince's founder, could still use the rebuke to bring off a massive publicity coup. All he needs to do is register the domain, the-domain-formerly-known-as-prince.



Bless you, tovarisch

You wake up in the middle of the night in a cold sweat. Something is missing from your life. What you need is a blessing from Patriarch Alexy II of the Russian Orthodox Church. Alexy blessed all the users of the 'official server' when it opened recently to provide information, in Russian and coming soon in English, about the past and present of Russia's largest religious organisation. Nice hats, too.

www.russian-orthodox-church.org.ru.

Top 10 radio sites

With the launch of the brand, spanking new Radio 1 Web site (www.radio1.co.uk), and coinciding with London Music Week, we bring you the top 10 best and most bizarre radio sites on the Internet. All you hear is Radio Gaga? Let us show you the way...

1 KMKS Radio 102.5

Texas Hot Country tunes, serving south Texas since 1984 with more hits than a hall of farmers. **www.kmks.com/**

2 WUOL 90.5 FM

Something to do with the University of Louisville and sitting on top of Floyds Knobs in Indiana. Mind boggles. **www.wuol.org/**

3 Rock 93.7 KSD

Classic rock with a capital RRR from the Seventies, Eighties and Nineties. Ant & Dec's radio rocks but not like this muther. **www.ksdfm.com/**

4 Lite FM 96 wupe

Whoopee Radio. Hmm. The best country music around. Allegedly. **http://wupe.com/wupe_profile.html**

5 WCRB 102.5 FM

Classical Radio Boston. Hooked on classics? You will be. **www.wcrb.com**

6 Radyo ODTÜ (Radio METU) FM 103.1 Ankara, Turkey

Twenty-four hours a day of... err... top Turkish hits. Nice. **www.radio.metu.edu.tr/**

7 Jazz FM

Home-grown site for cool cats, but beware phantom browser-busting plug-in. **www.jazzfm.com**

8 ontheair.com

Resource of 271 live radio links and counting, which ranges from the Praise Broadcast Network of Arlington, Texas, to 97.7 Reykyavik's coolest indie station. Top. **www.ontheair.com**

9 Premiere Radio Networks Online

Another link-tastic radio resource. **www.premrad.com/**

10 Virgin Radio

They lead the way – and what's more, you ain't seen nothing yet. **www.virginradio.co.uk**

Quotes of the Month

Soundbites on life on the Net

"The Internet is full of criminals and perverts."
Dot Cotton, EastEnders

"To prosecute CompuServe is like asking Kodak to ensure that its film is only used for for innocuous purposes such as holiday snaps and official portraits of the prime minister but not under any circumstances people taking their clothes off and attempting to have sex with alsatian dogs."
Linda Grant, the voice of reason, goes in search of cybersex, The Guardian

"The general level of content on the Net is getting worse. Now you can do pretty much anything if you put your imagination to it. A lot of people involved are realising that they never had much imagination in the first place."
Jon Bains of Web design house Obsolete takes a dig at the new breed of Net cognescenti, Media Guardian

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